



ITS3 activities in Bari

BBM6

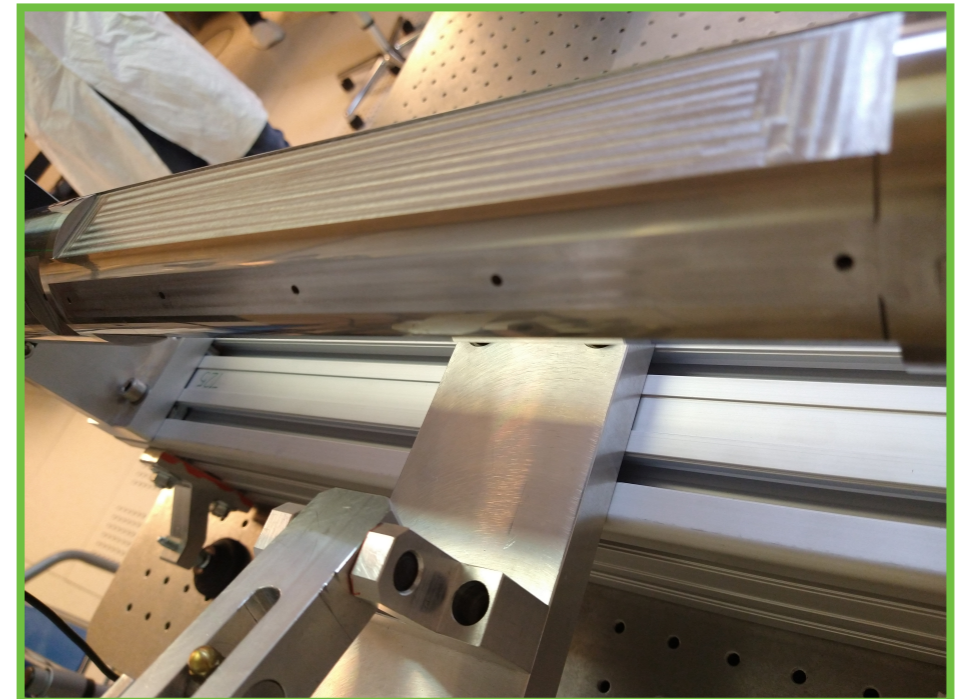
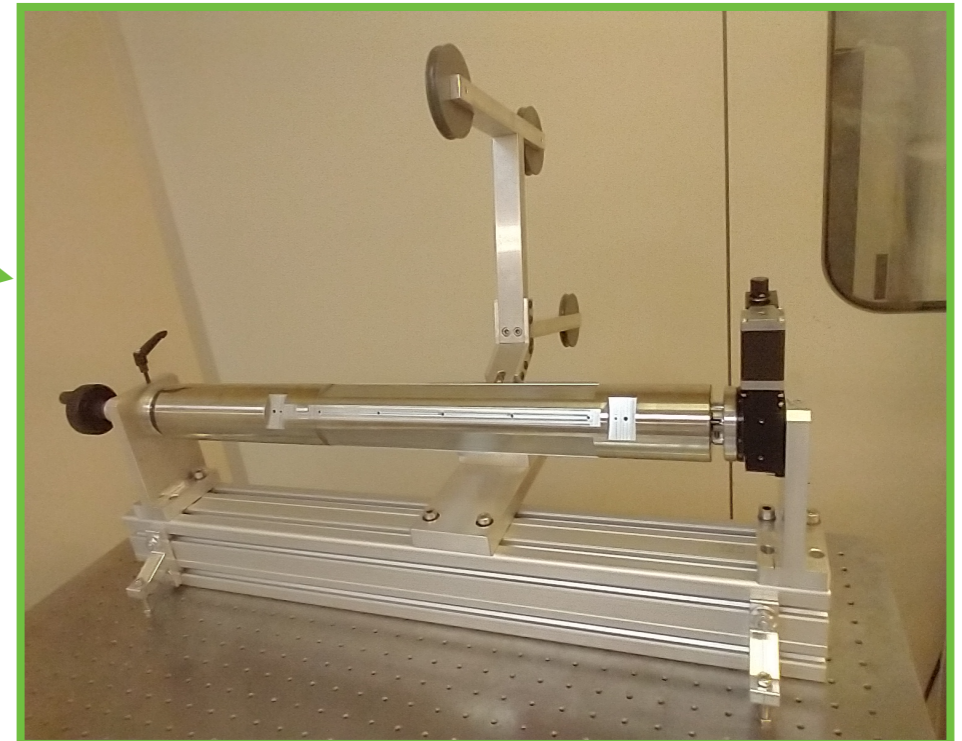
BBM6 TTA - SUMMARY TABLE

COMPONENT	PRODUCTION STATUS
L0, L1, L2 mandrels	
Bending/bonding setup	
Half-rings and longerons alignment/gluing tools	
L0, L1, L2 carbon foam half-rings	
L0, L1, L2 carbon foam longerons	
L0, L1, L2 3d printed half-rings for FPC	
L0, L1, L2 heaters + powering cables	
L0, L1, L2 air ducts	
Beam pipe simulator + extensions	AVAILABLE @CERN + @Bari, soon printed
C-side air collector	
CYSS	
Conical shell	
Patch-panel	
PT1000 sensors + cables	
Covering plexiglass	@Bari
Assembly support	@Bari



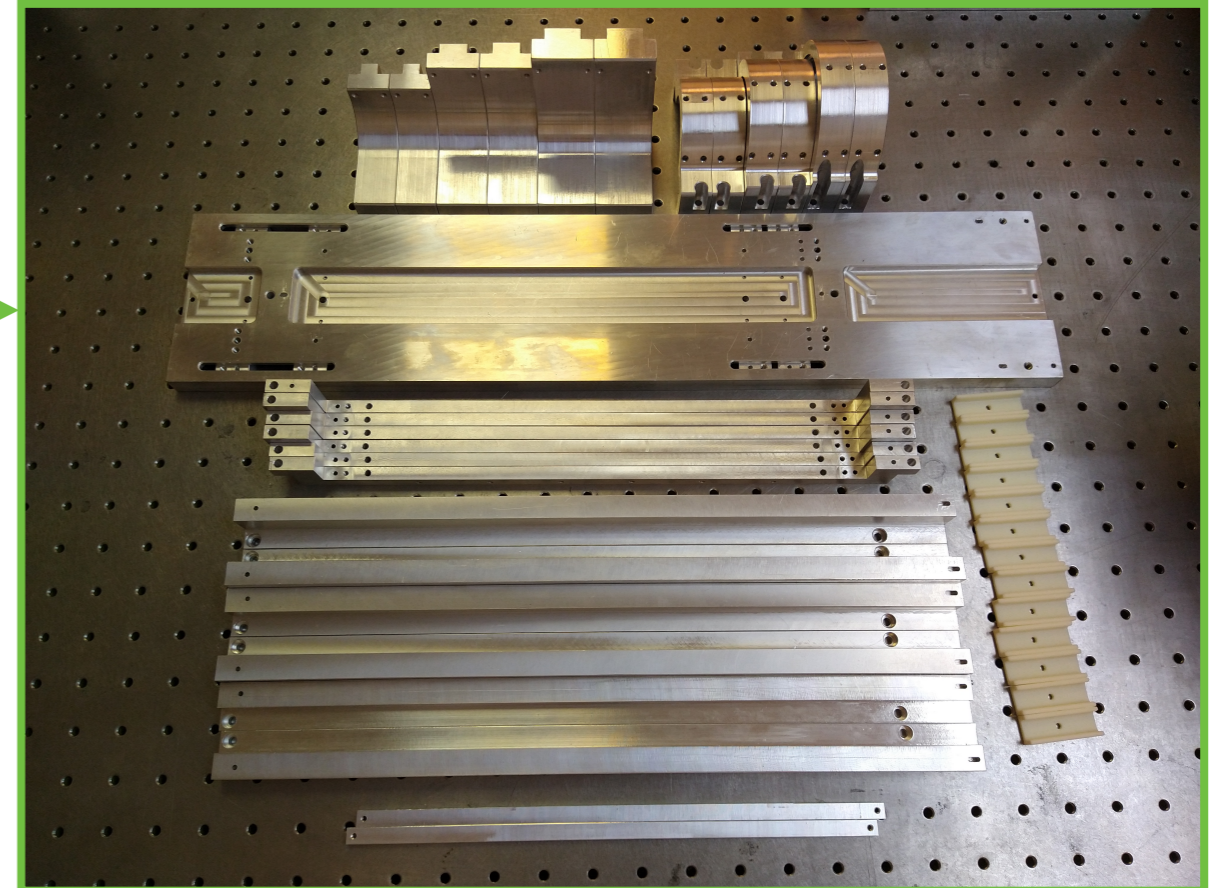
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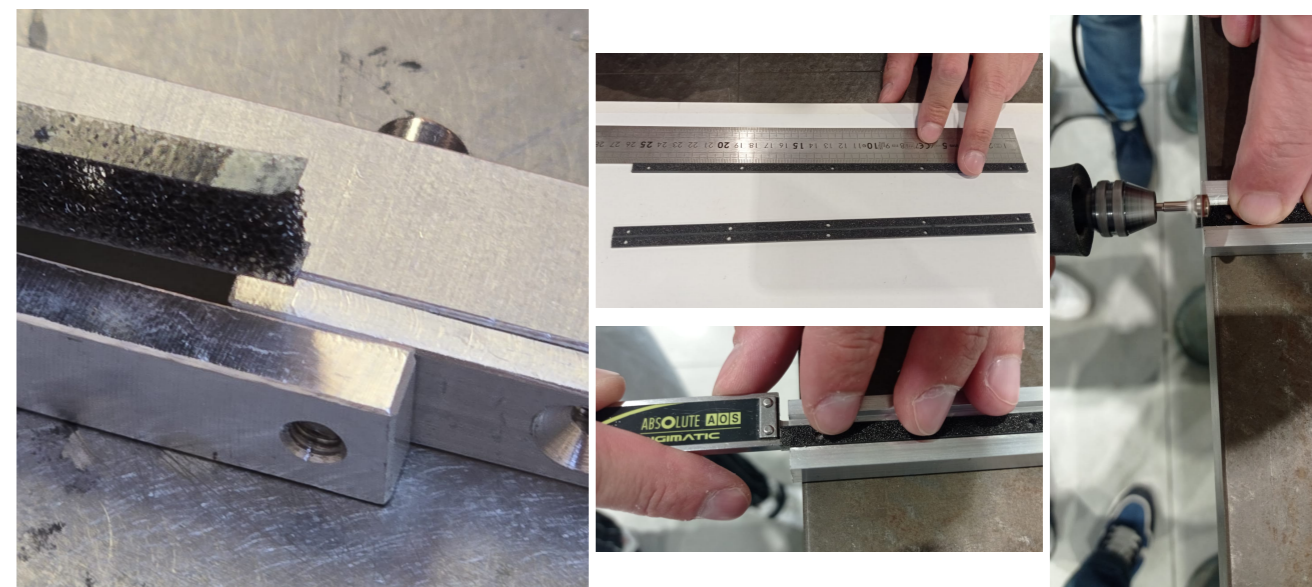
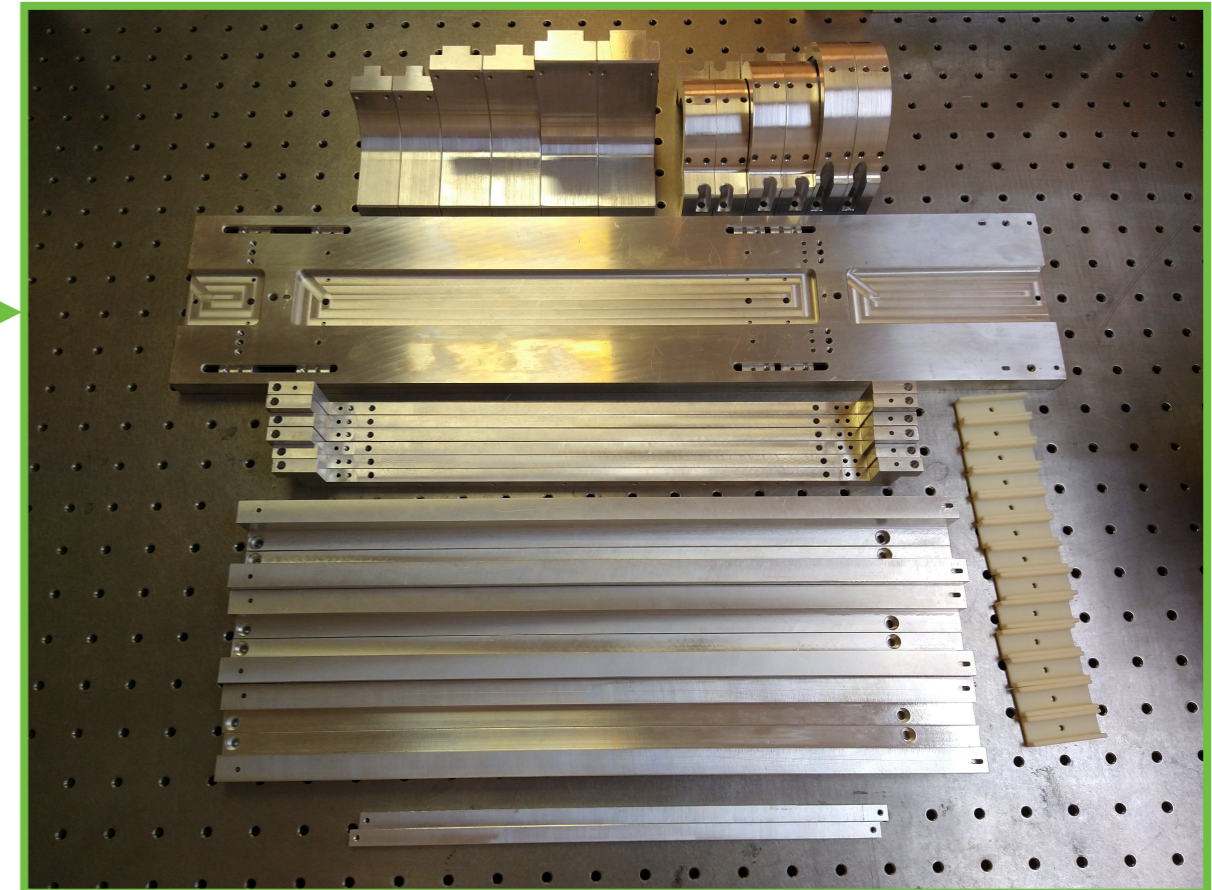
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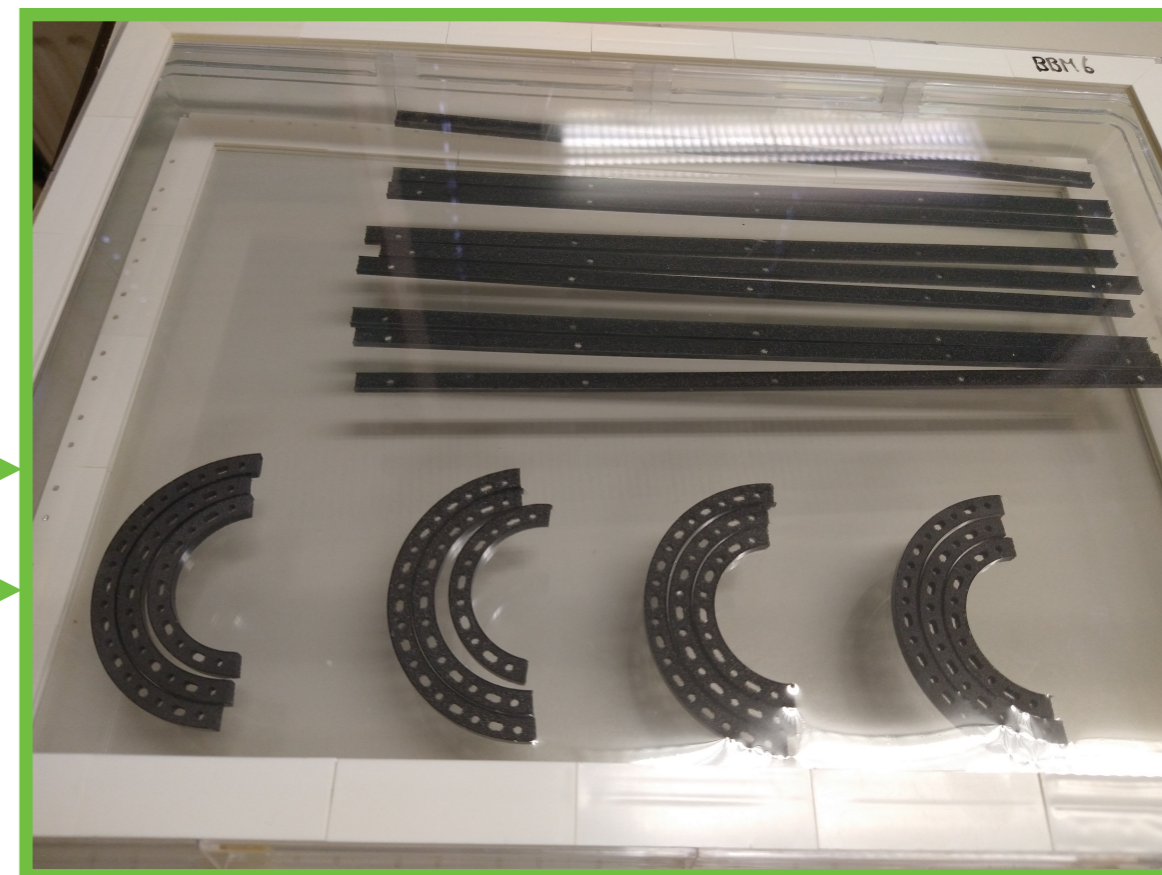
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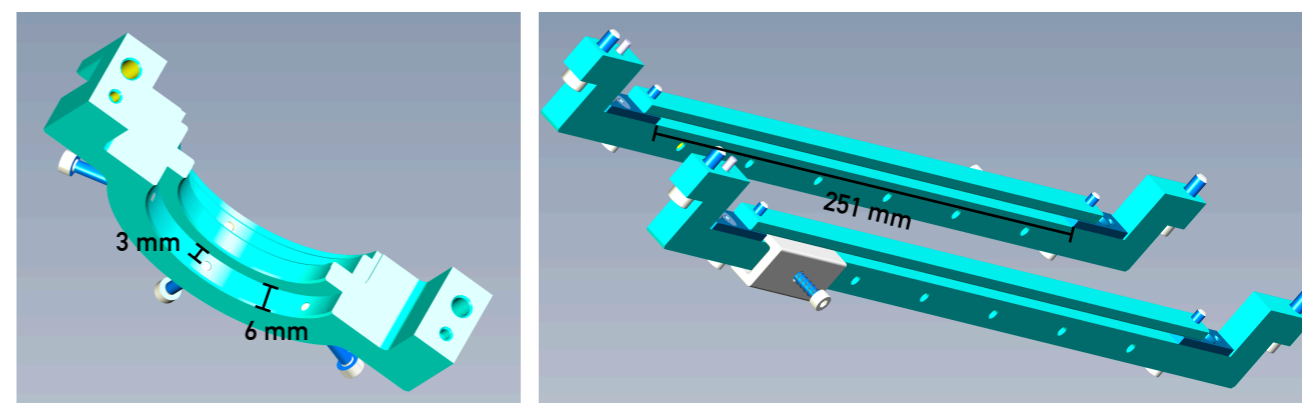
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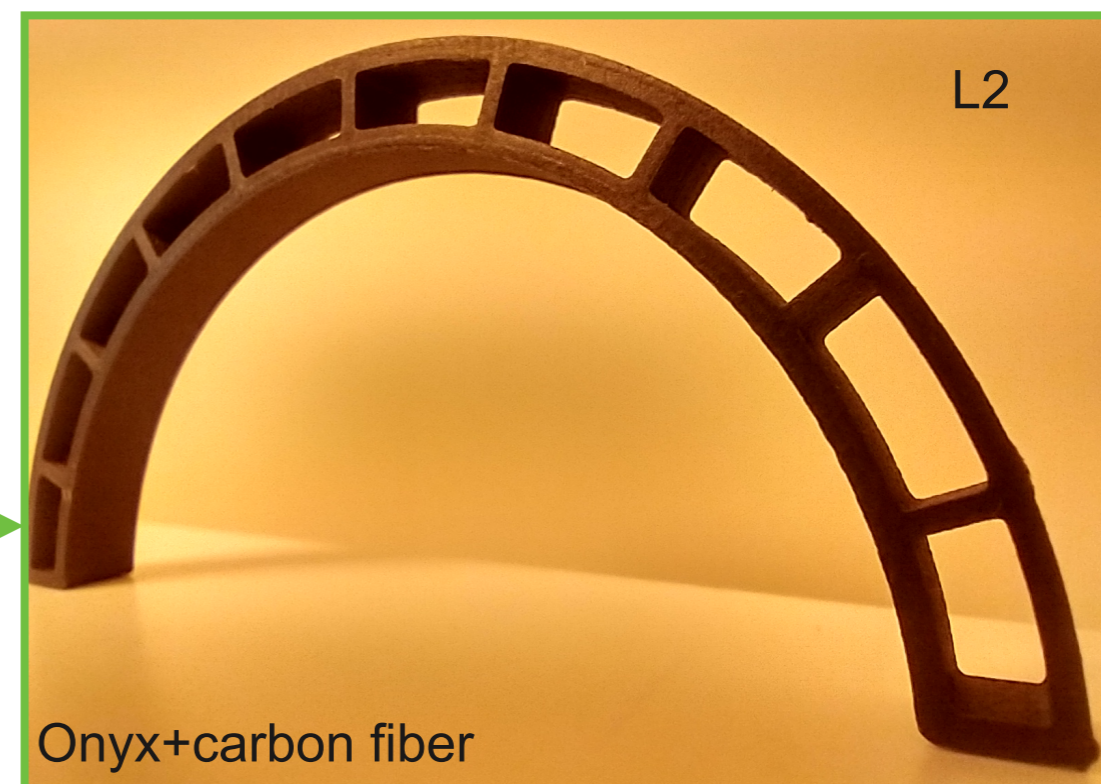
Half-rings thickness moved from 6 mm to of 3 mm
 → Logerons length moved from 251 mm to 256 mm

Logerons to be re-produced
 Gluing holders to be modified



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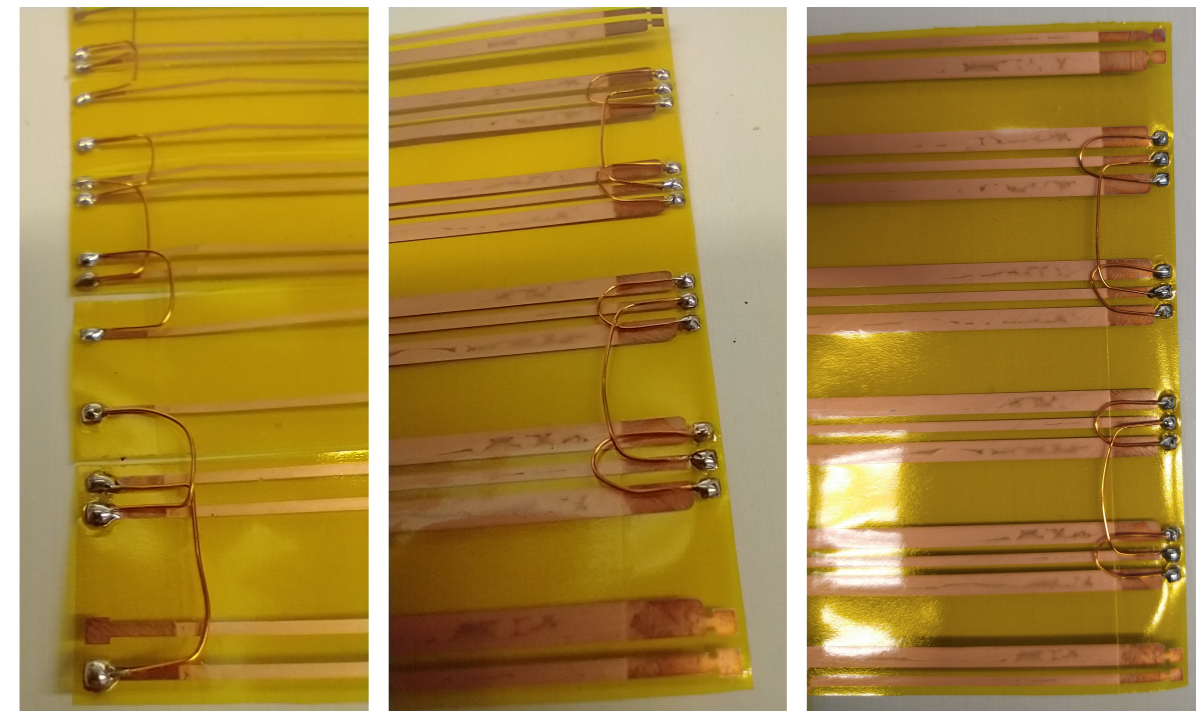
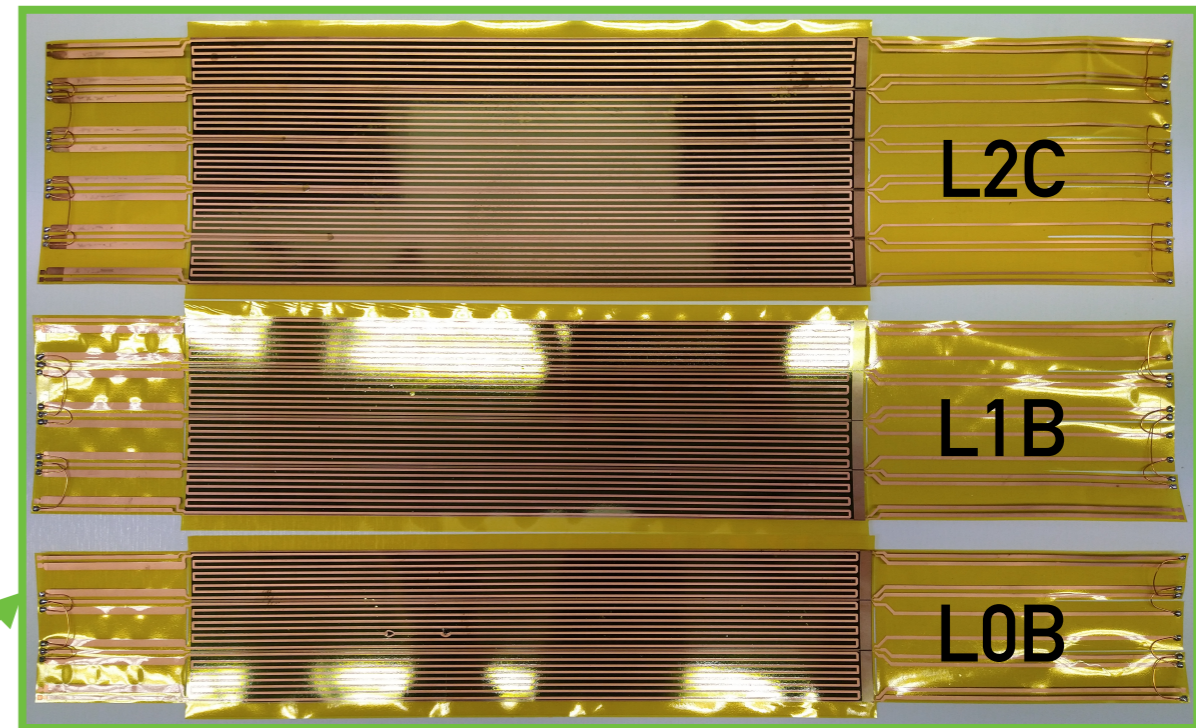
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Can you confirm that the thickness is 6 mm for these half-rings?

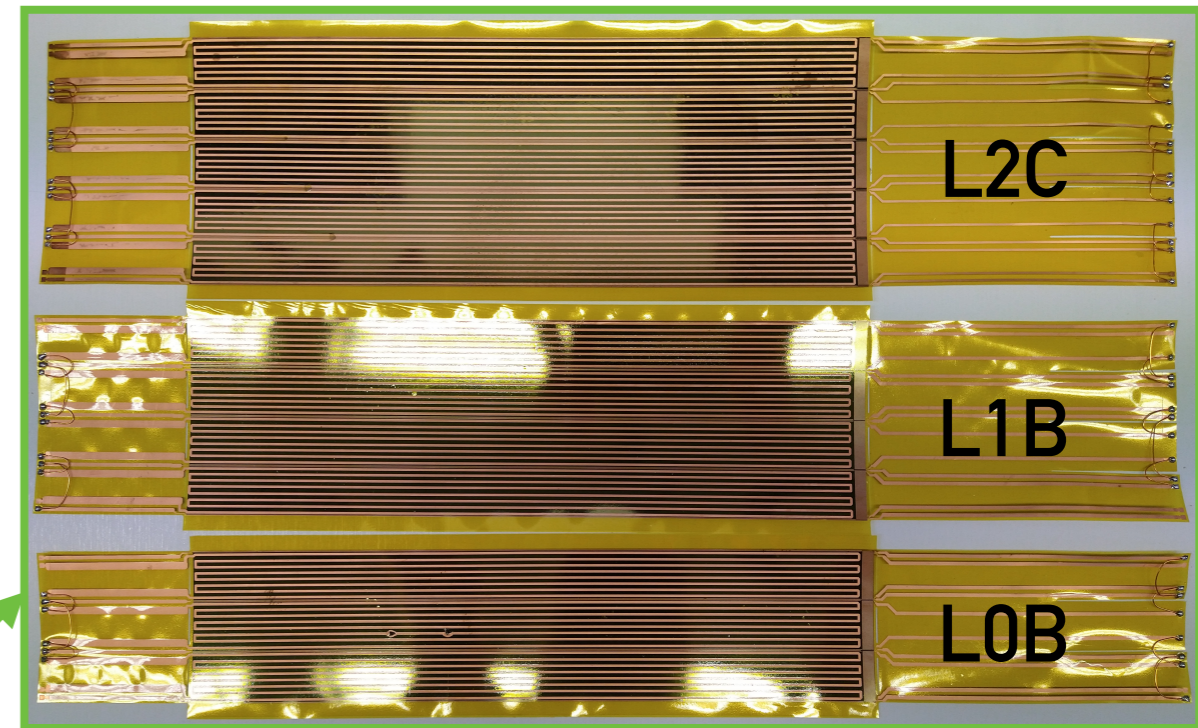
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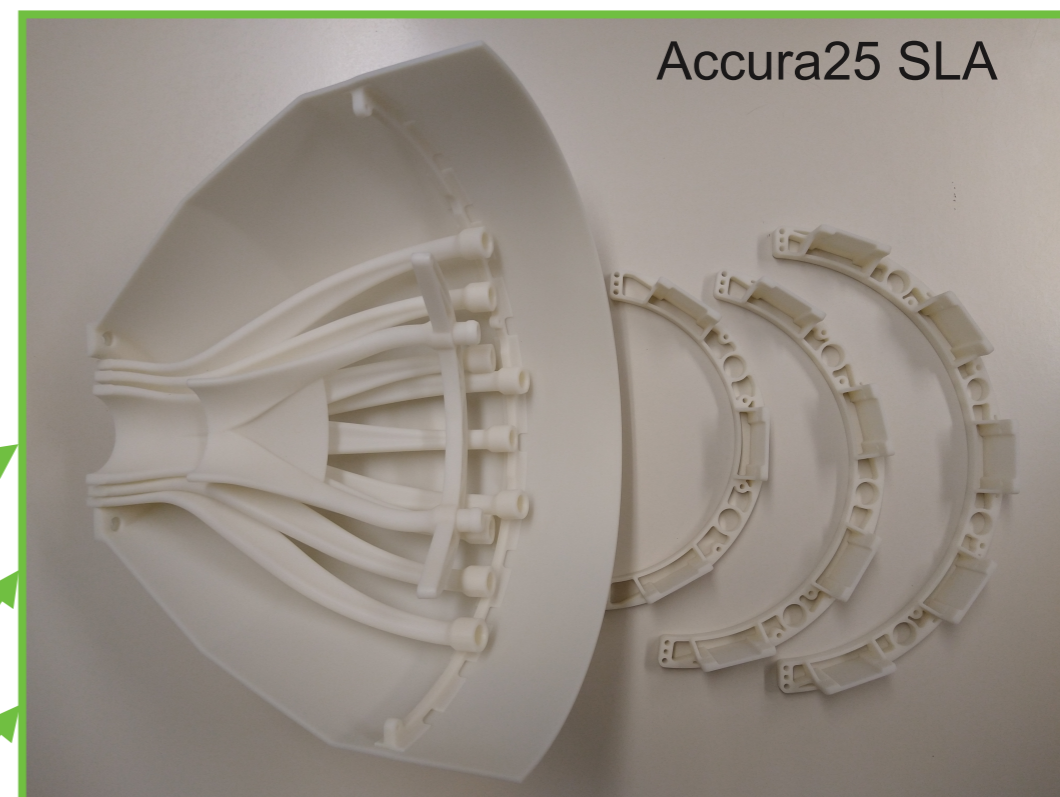
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<p>L0B</p> <p>Left end-cup 77.3 Ω</p> <p>Pixel matrix 25.1 Ω</p> <p>Periphery 106.9 Ω</p>	<p>L1B</p> <p>Left end-cup 102.7 Ω</p> <p>Pixel matrix 32 Ω</p> <p>Periphery 147.7 Ω</p>
<p>L2C</p> <p>Left end-cup 148.6 Ω</p> <p>Pixel matrix 43.8 Ω</p> <p>Periphery 192.1 Ω</p>	

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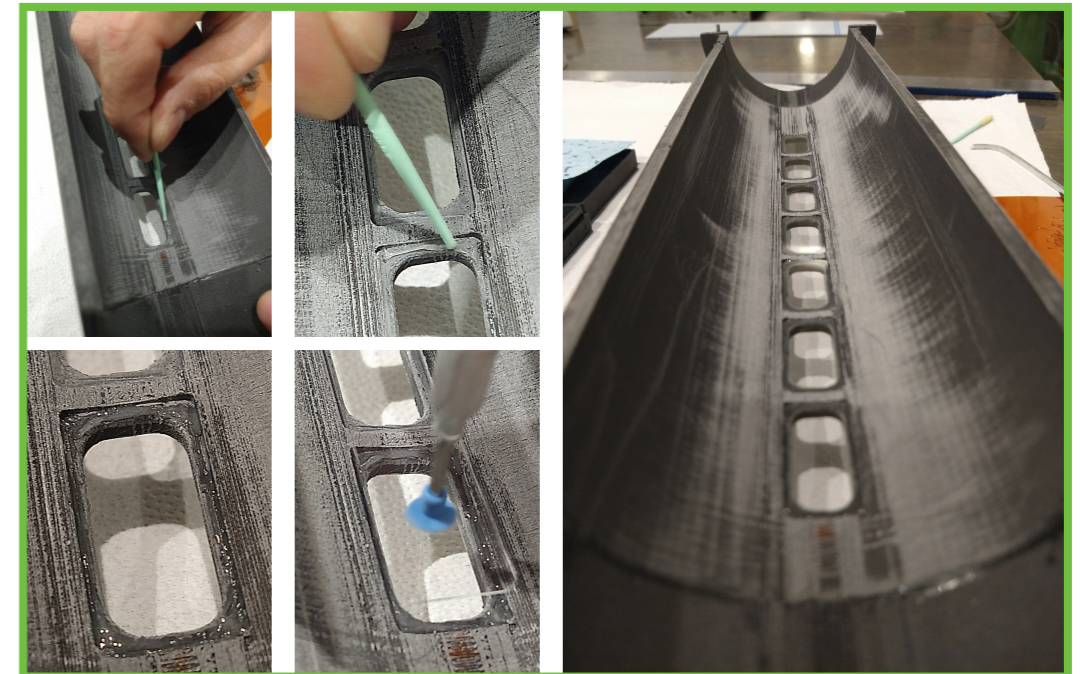
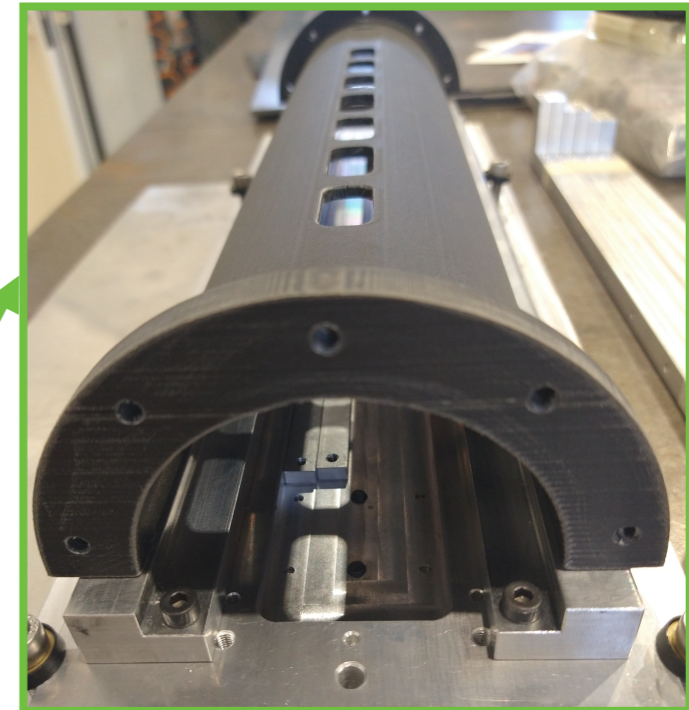
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Onyx+carbon fiber



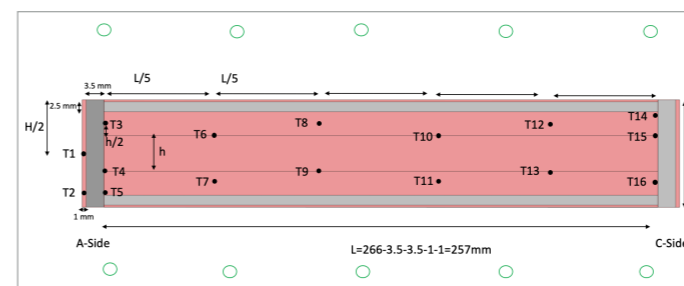
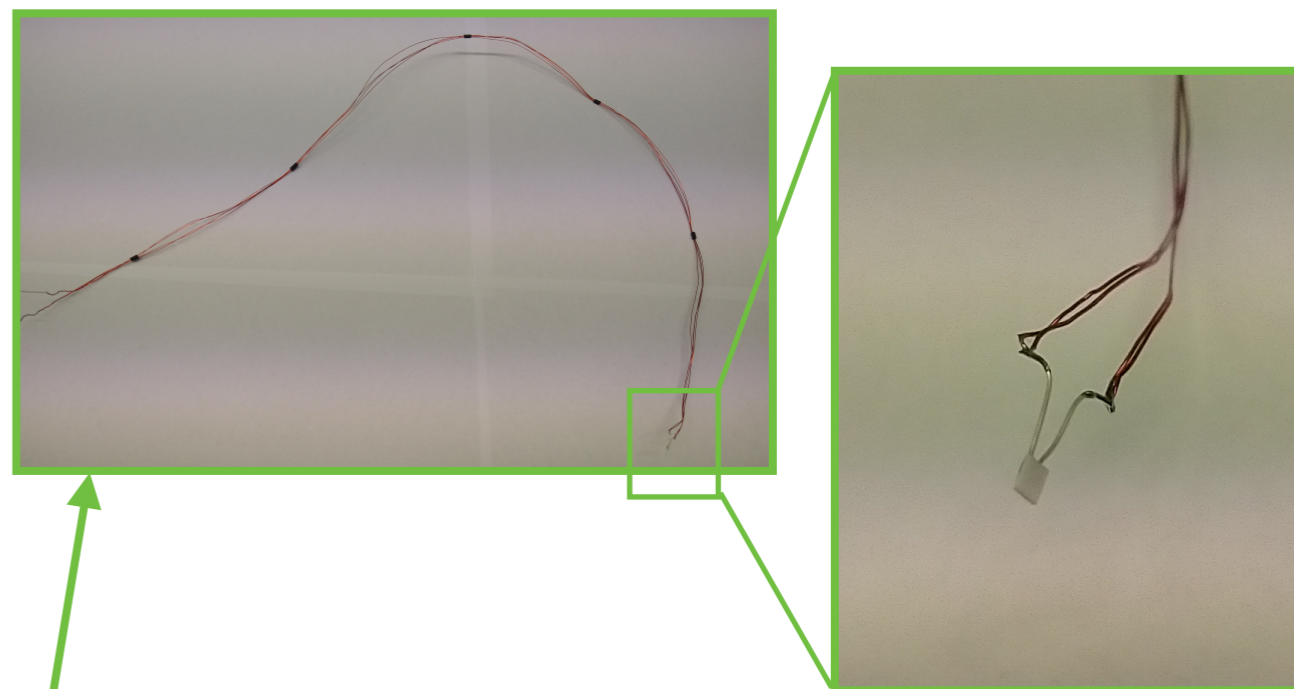
Glasses glued

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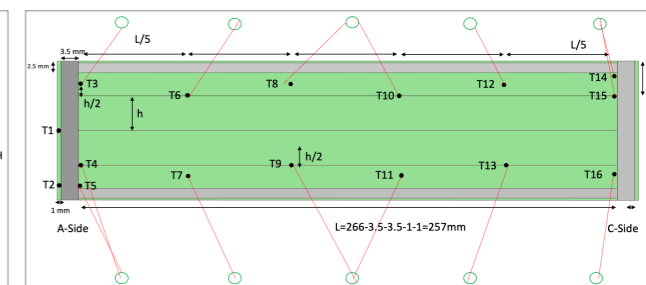
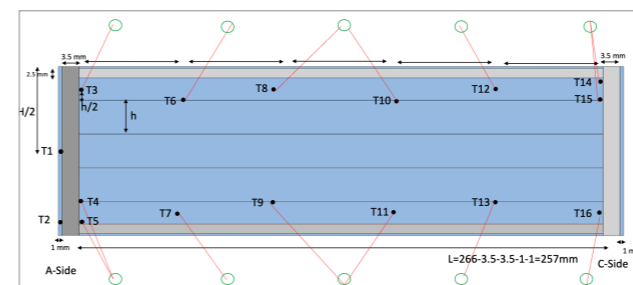
General condition:

- Conductive glue: Epoxies 50-3150 FR + Catalyst: EE-190-13
- PT1000 sensor equipped with 4 wires



Complex version:
 L0 → 16, L1 → 16, L2 → 16
 TOTAL → 48

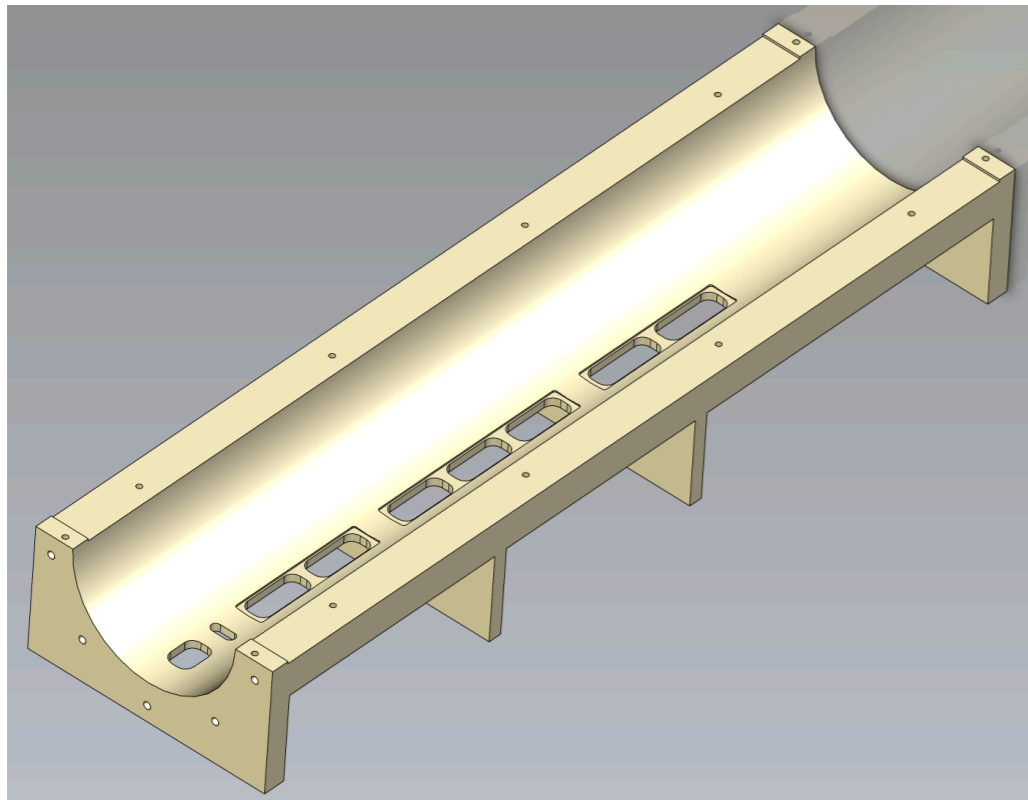
○ Fori nei longerons
 — Cavi da PT1000



BACKUP

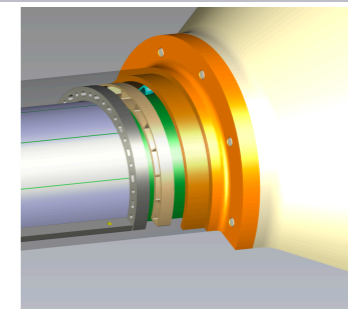
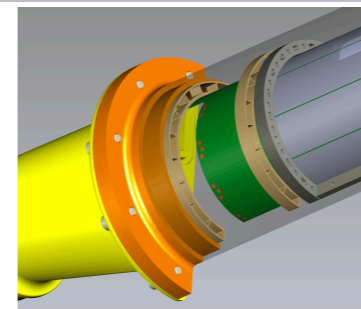
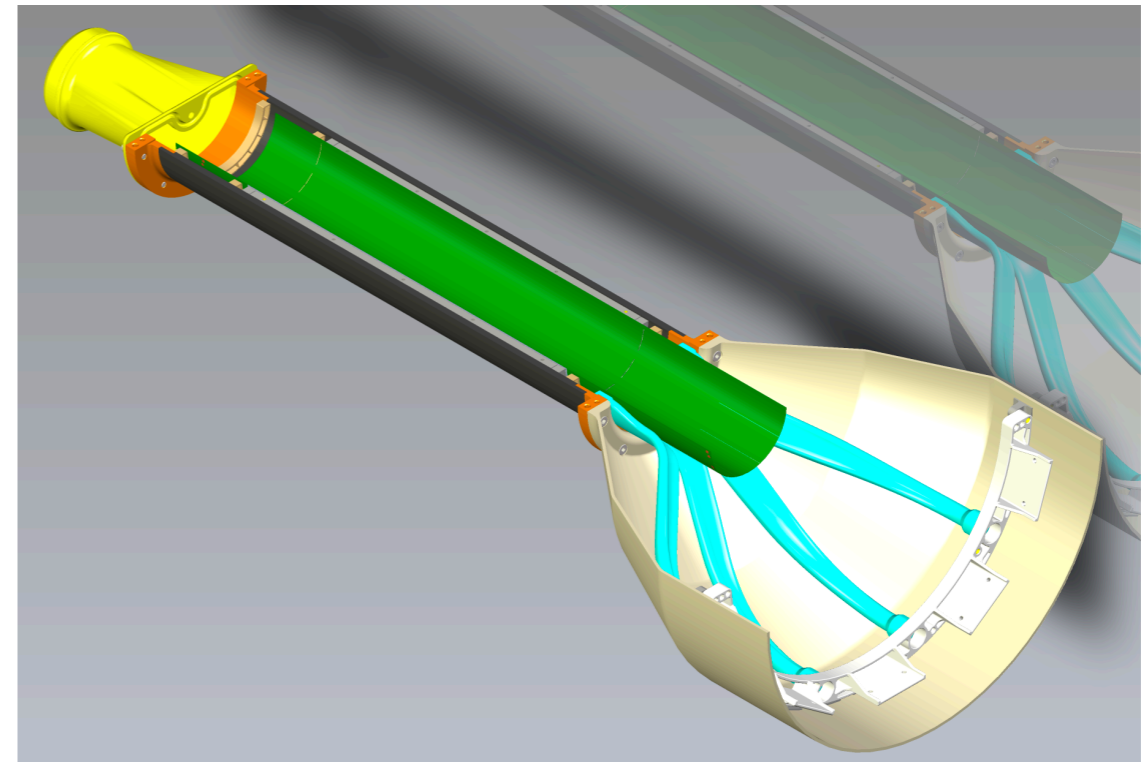


BBM6 TTA - CYSS



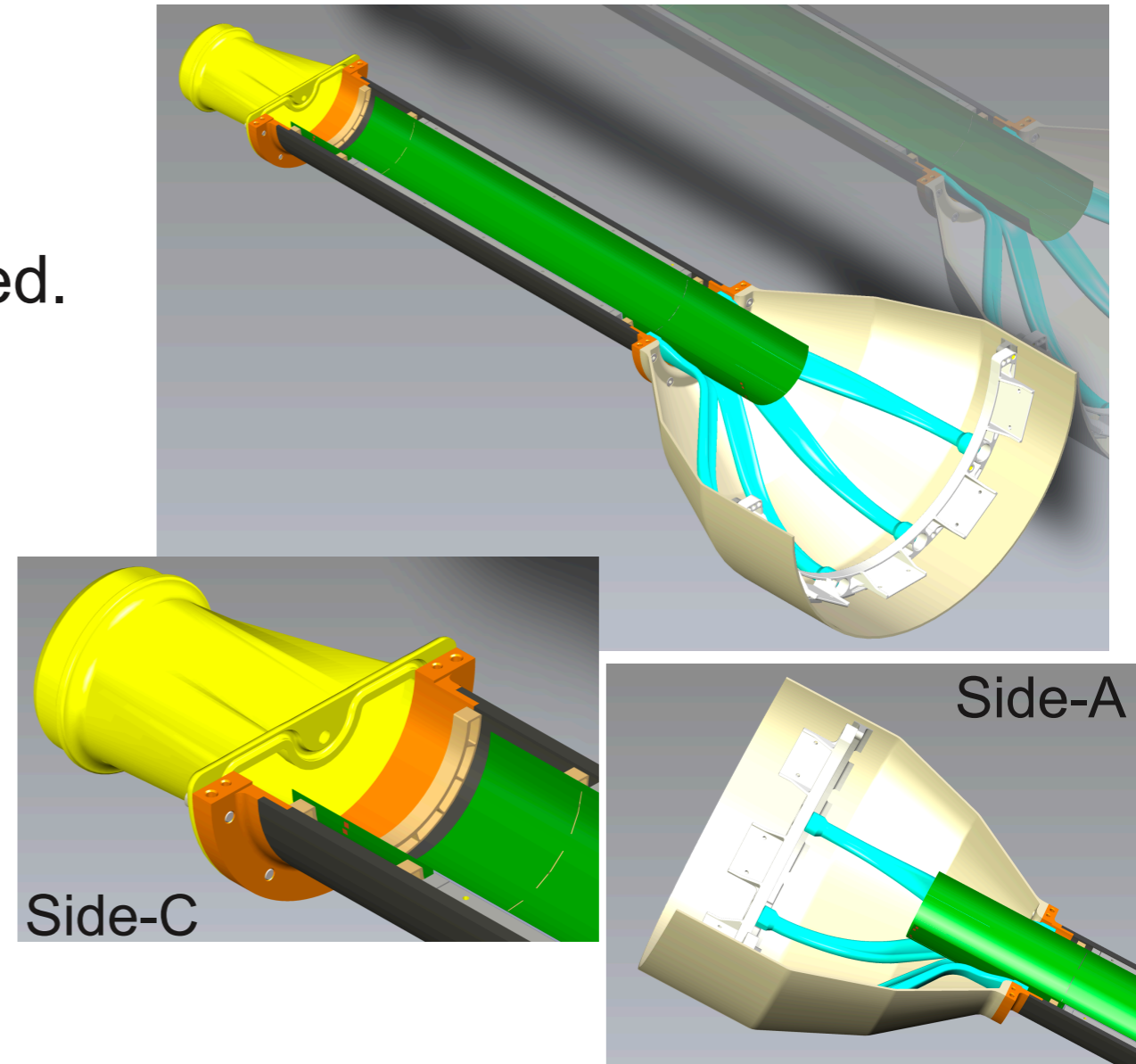
As agreed, the CYSS will be produced in plastic material. We choose the bakelite for the higher precision.

As an alternative, working on the production of a CYSS in carbon fibre.



BBM6 TTA - CYSS

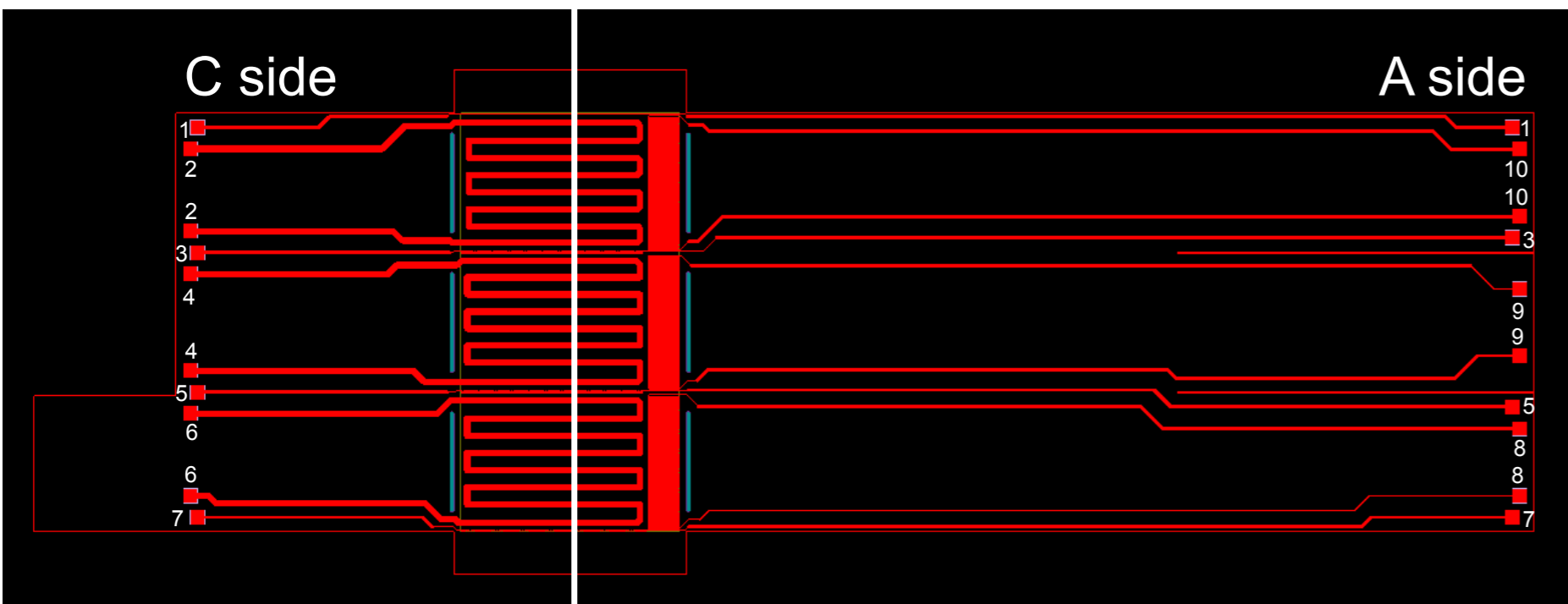
- Identified a potential producer, very close to Bari and already working with INFN for other projects (CMS and ATLAS): CETMA
- The shell will be made at the best dimensions to fit BBM6
 - Internal skin removed and CYSS internal radius consequently adapted. Total thickness ~ 4.7 mm.
 - Half-rings adaptors: re-designed to adapt the already produced components (conical shell and air collector side-C)



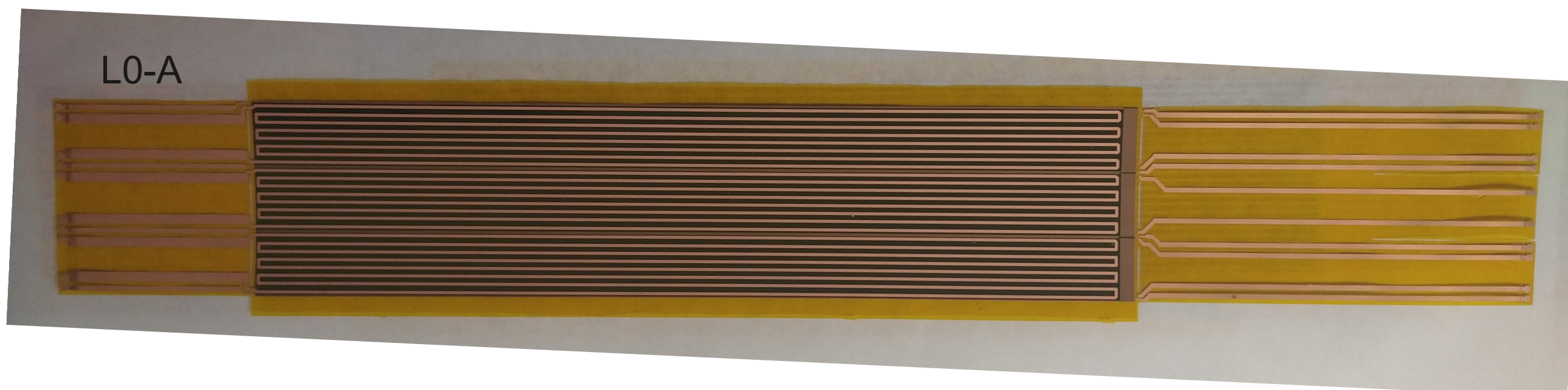


ALICE

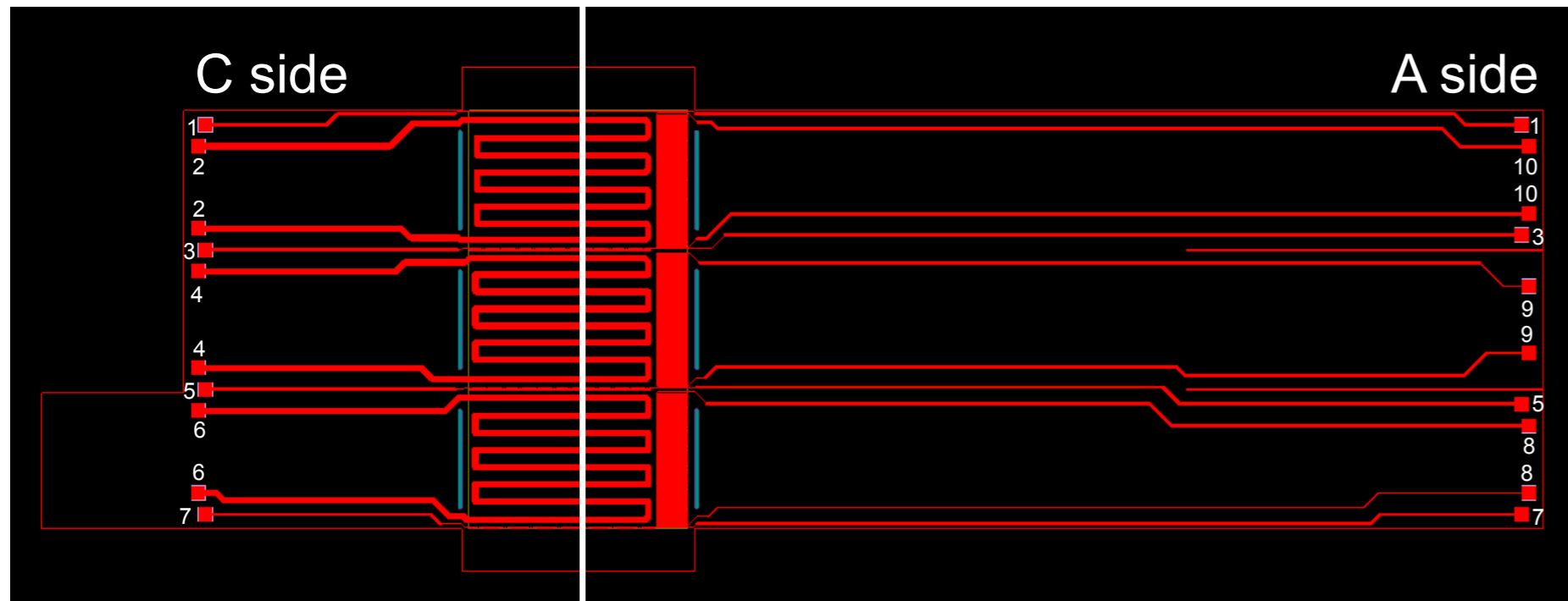
		Resistivity [ohm]		
		Maximum	Nominal	Minimum
LE	Left end cap	48	40	30
PM	Pixel matrix	11	8	5
RP-2	Readout periphery (2lines)	65	50	40
RP-1	Readout periphery (1line)	32	25	20



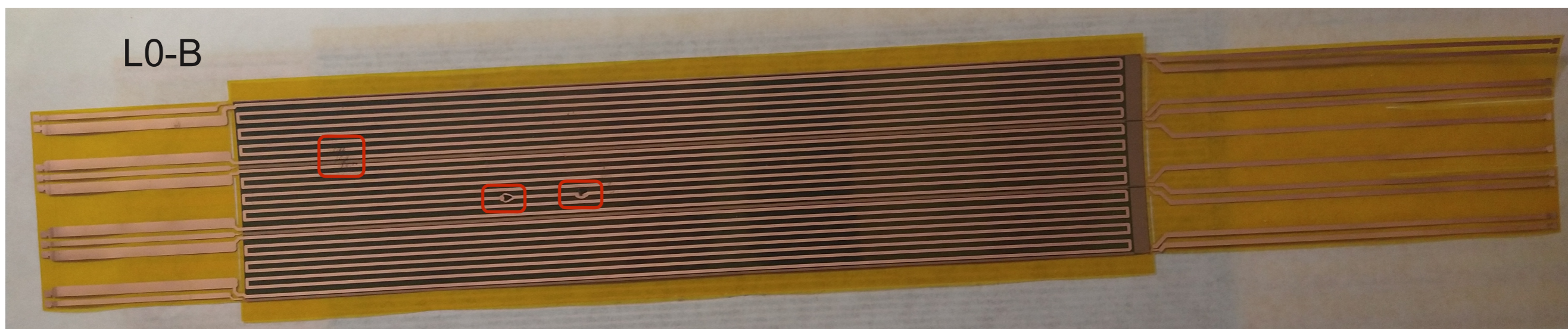
1	RP-1	22.6	6	PM	8.5
2	PM	8.5	7	RP-1	22.6
3	RP-2	48.0	8	LE	32.2
4	PM	8.5	9	LE	31.2
5	RP-2	47.4	10	LE	32.5



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PM	Pixel matrix	11	8	5
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RP-1	Readout periphery (1line)	32	25	20



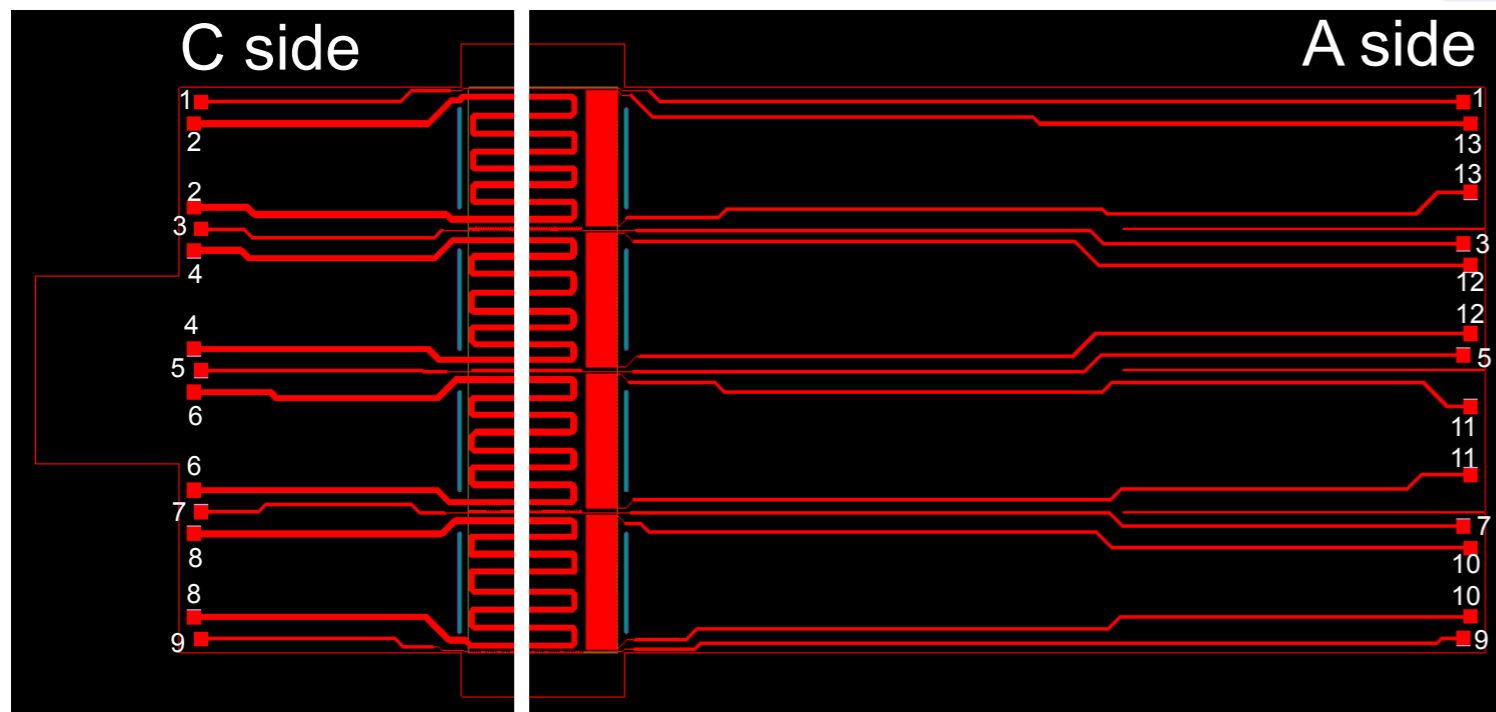
1	RP-1	17.2	6	PM	8.4
2	PM	8.4	7	RP-1	16.9
3	RP-2	36.5	8	LE	25.9
4	PM	8.4	9	LE	26.1
5	RP-2	37.0	10	LE	25.5



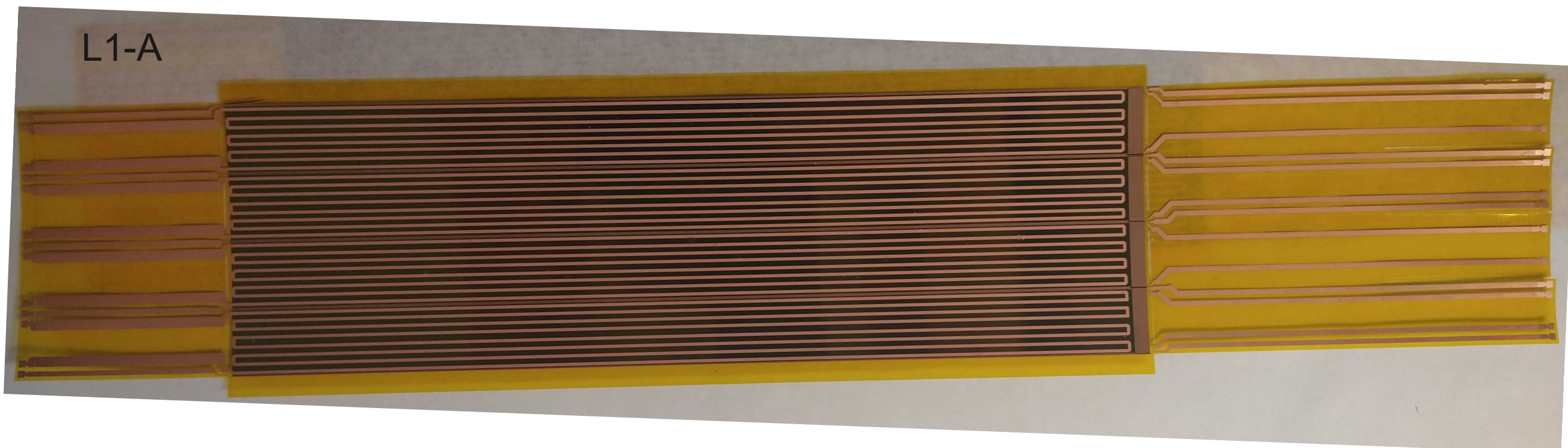


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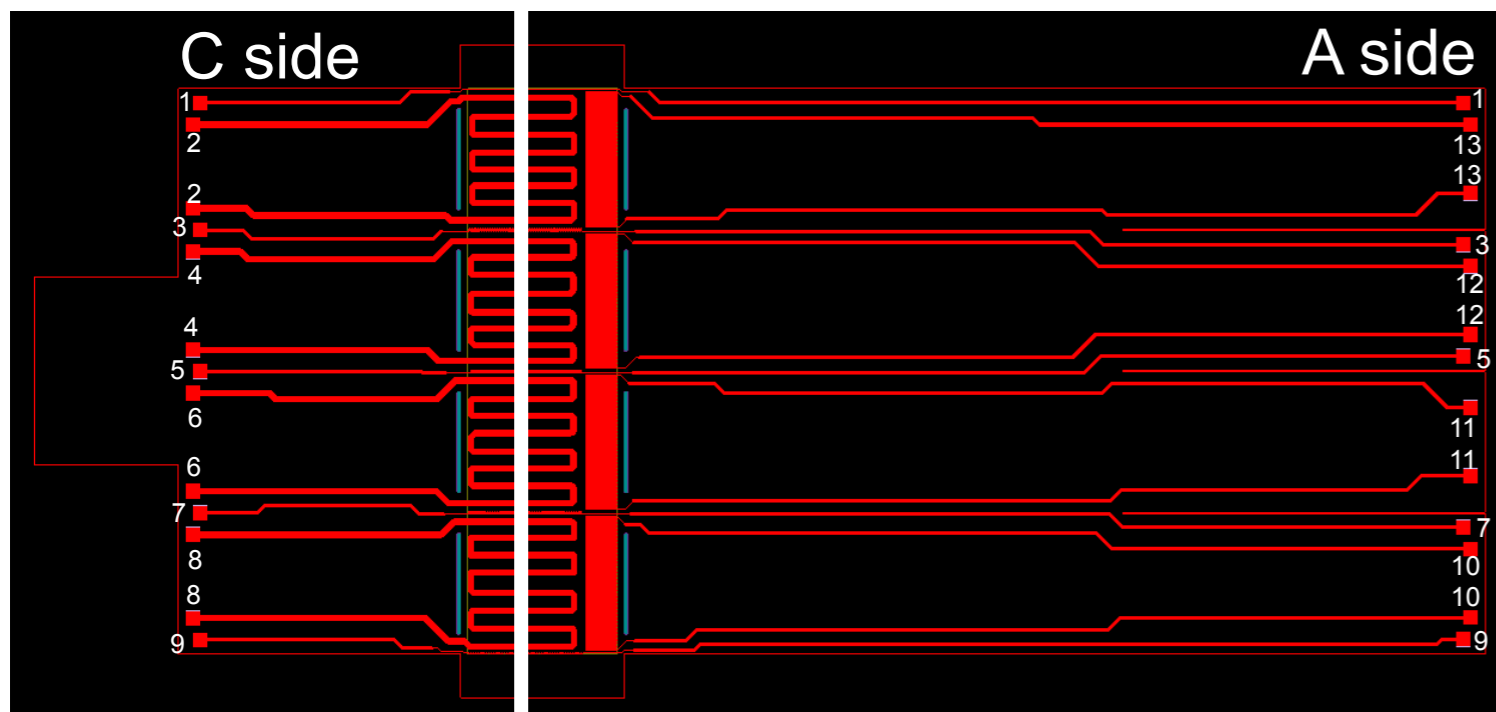
1	RP-1	17.6	8	PM	8.2
2	PM	8.2	9	RP-1	17.3
3	RP-2	37.8	10	LE	24.6
4	PM	8.2	11	LE	24.0
5	RP-2	37.8	12	LE	25.0
6	PM	8.3	13	LE	24.2
7	RP-2	37.8			



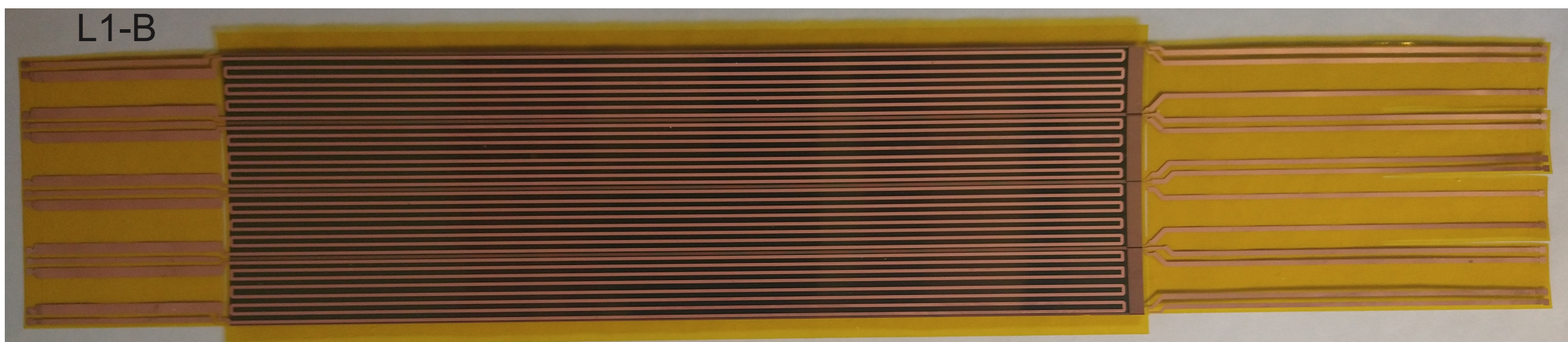


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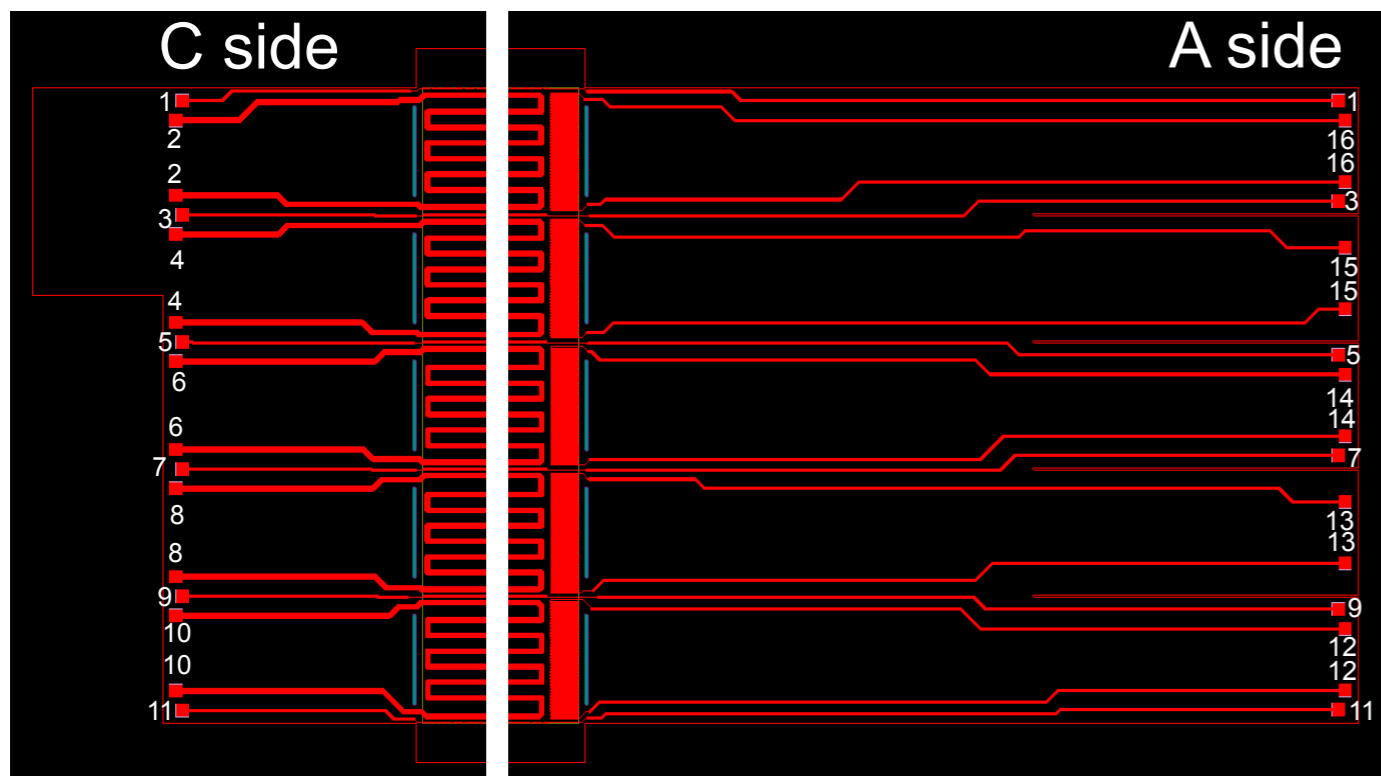
1	RP-1	18.3	8	PM	8.3
2	PM	8.5	9	RP-1	18.1
3	RP-2	37.6	10	LE	26.9
4	PM	8.3	11	LE	25.7
5	RP-2	37.6	12	LE	25.7
6	PM	8.3	13	LE	26.2
7	RP-2	38.4			





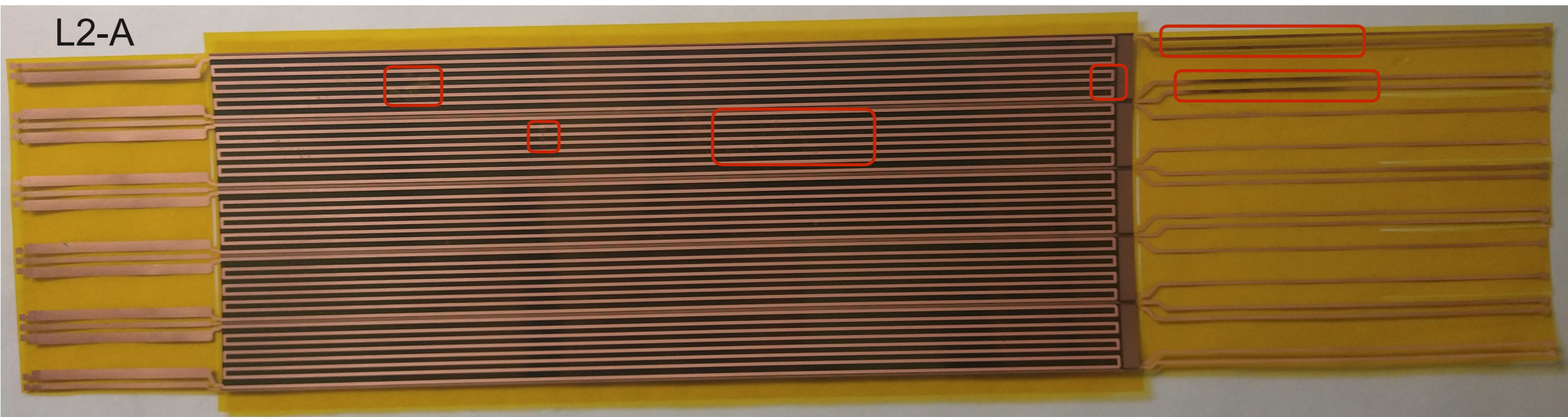
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RP-1	Readout periphery (1line)	32	25	20



1	RP-1	19.8	9	RP-2	42.0
2	PM	8.7	10	PM	8.7
3	RP-2	42.2	11	RP-1	19.8
4	PM	8.5	12	LE	28.4
5	RP-2	42.5	13	LE	29.1
6	PM	8.5	14	LE	27.5
7	RP-2	42.3	15	LE	28.2
8	PM	8.5	16	LE	27.0

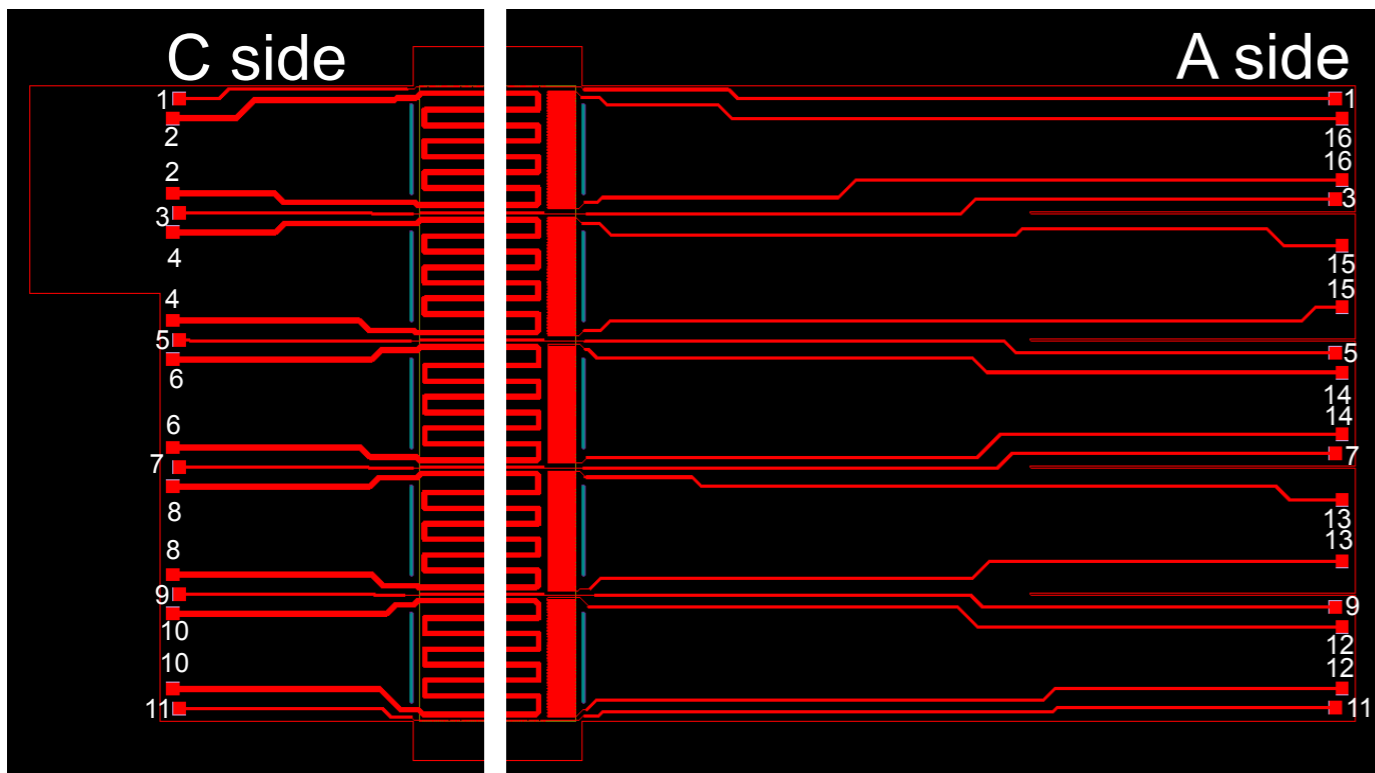
L2-A





ALICE

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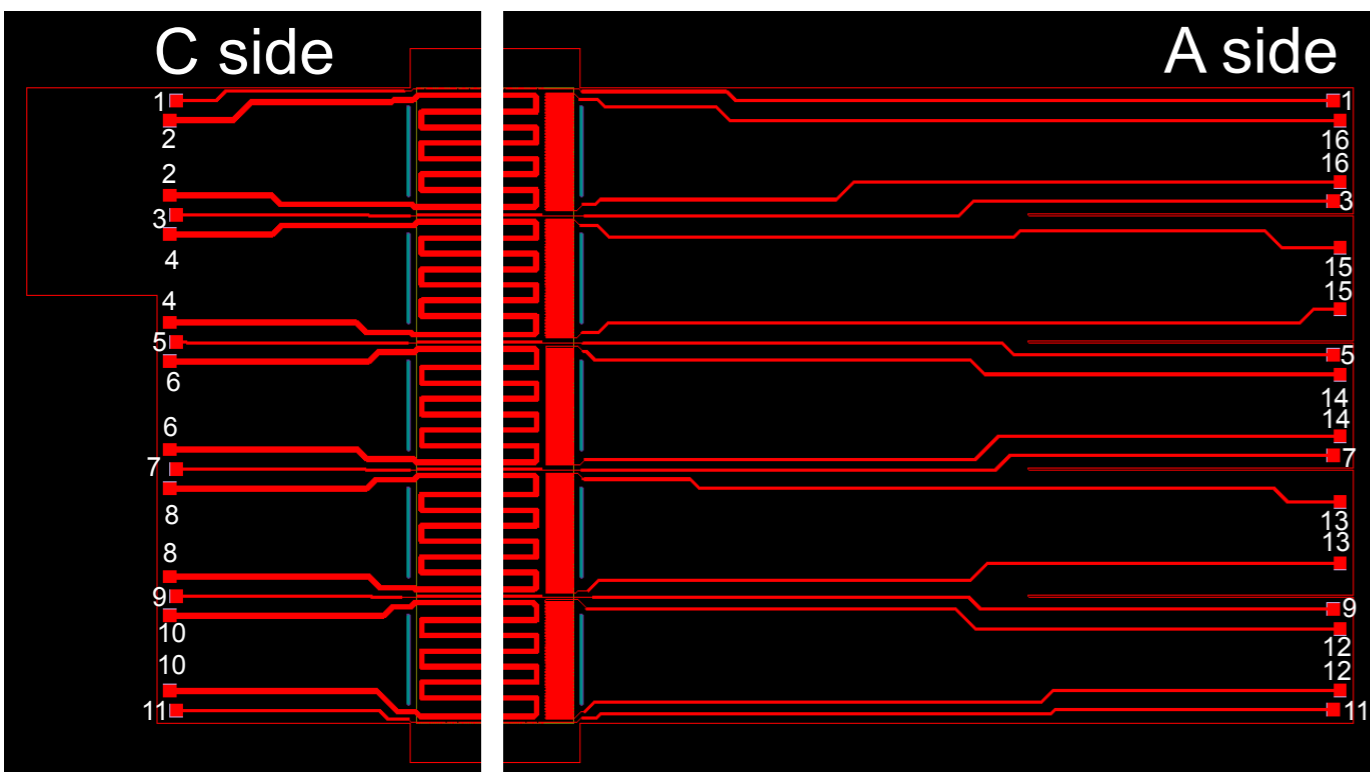
1	RP-1	19.4	9	RP-2	39.2
2	PM	9.1	10	PM	9.2
3	RP-2	39.8	11	RP-1	19.2
4	PM	9.2	12	LE	26.0
5	RP-2	39.9	13	LE	27.0
6	PM	9.2	14	LE	26.6
7	RP-2	39.9	15	LE	26.7
8	PM	9.3	16	LE	26.5



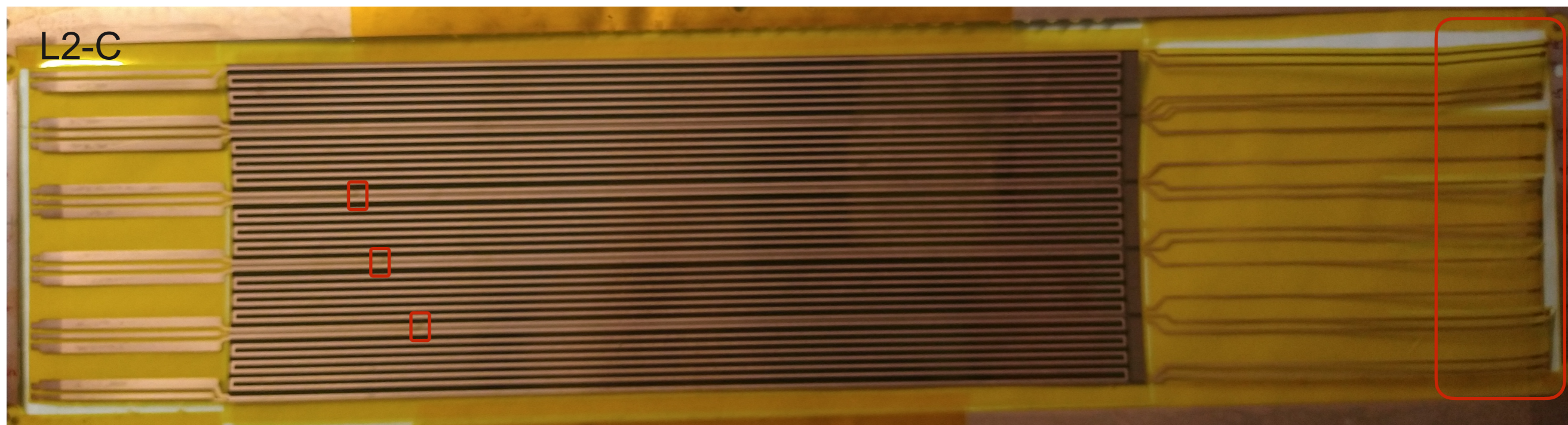


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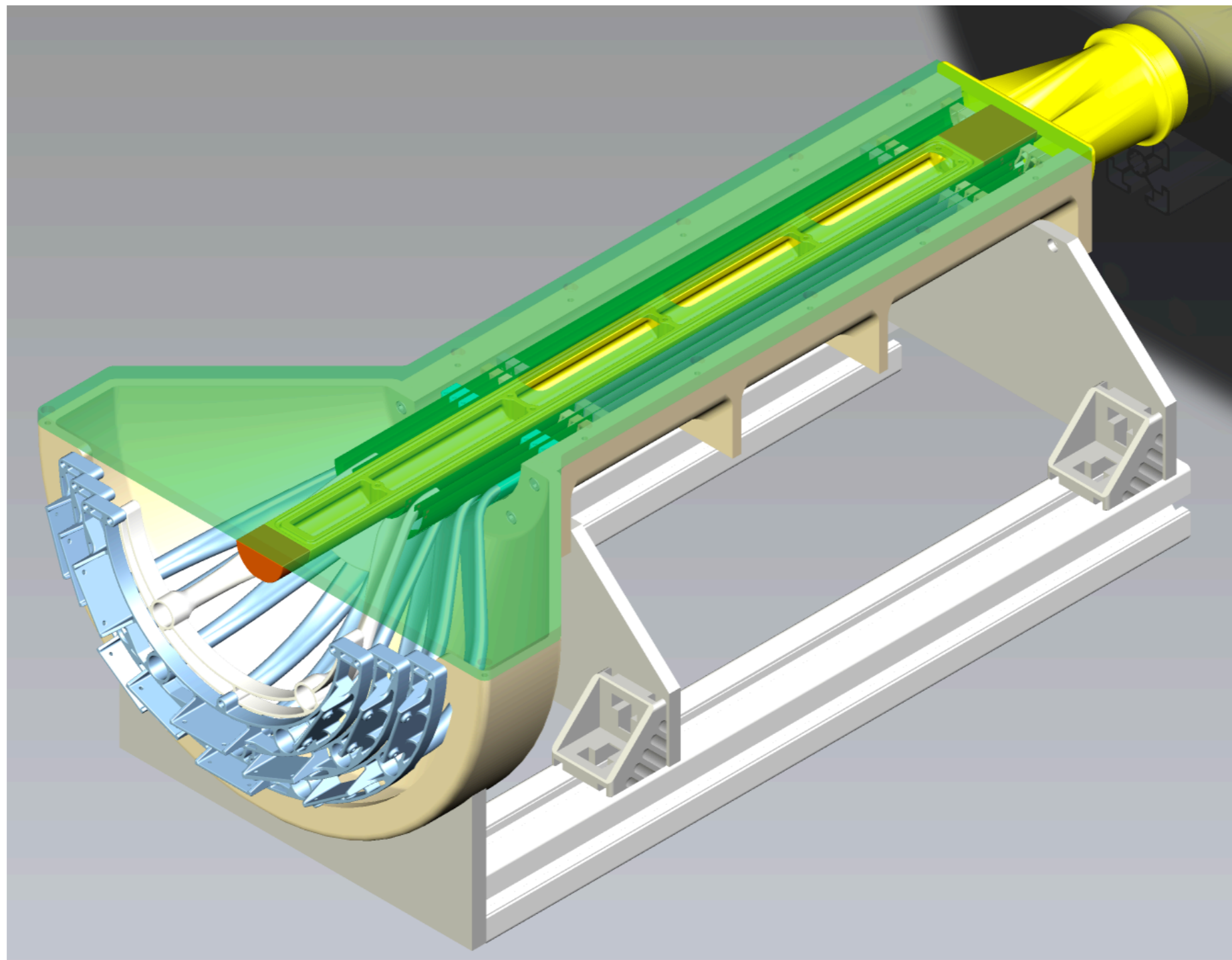


1	RP-1	20.1	9	RP-2	39.9
2	PM	9.6	10	PM	9.6
3	RP-2	39.8	11	RP-1	20.0
4	PM	9.5	12	LE	30.8
5	RP-2	38.8	13	LE	31.0
6	PM	9.5	14	LE	30.8
7	RP-2	39.8	15	LE	31.1
8	PM	9.5	16	LE	30.5



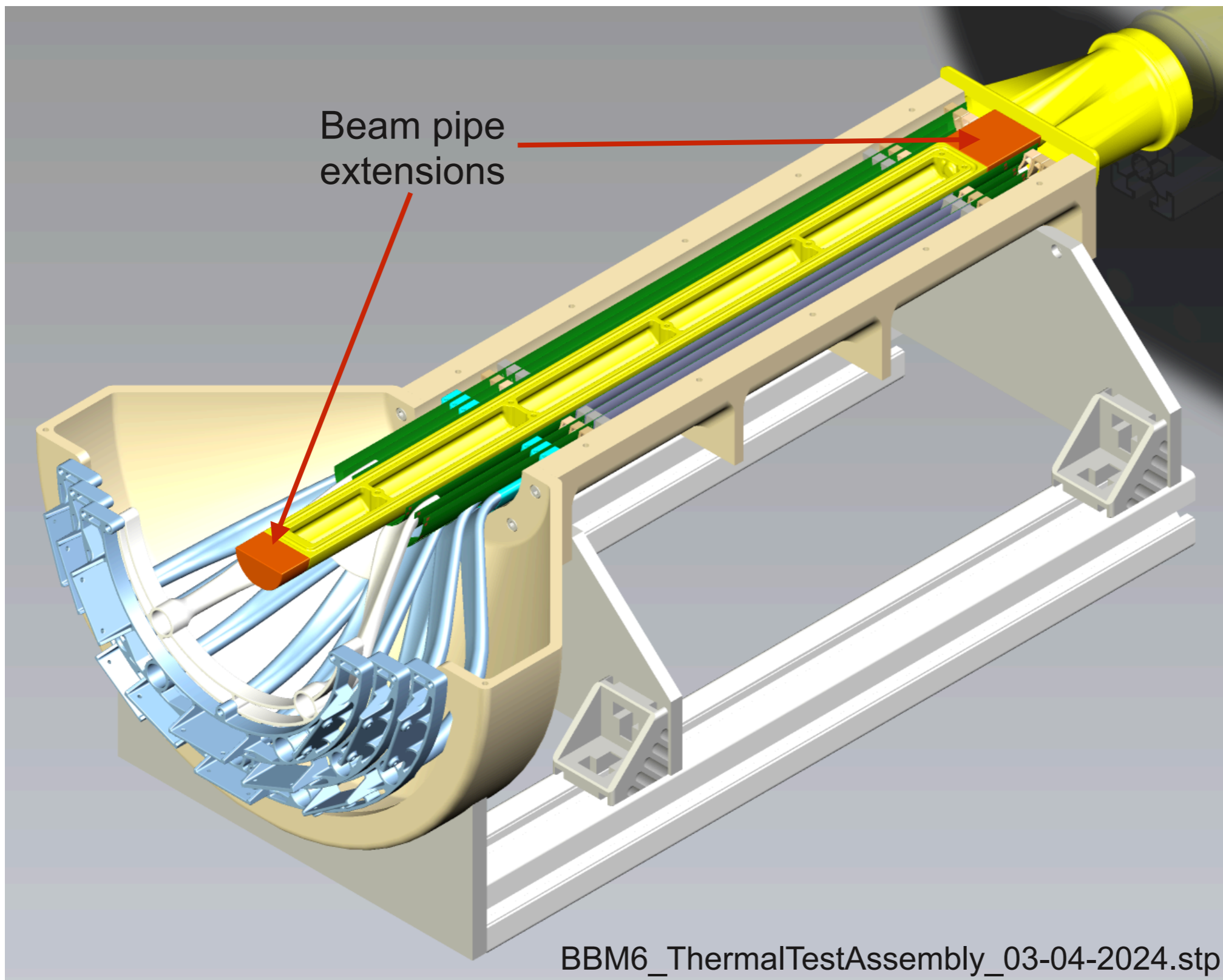


BBM6_ThermalTestAssembly_03-04-2024.stp

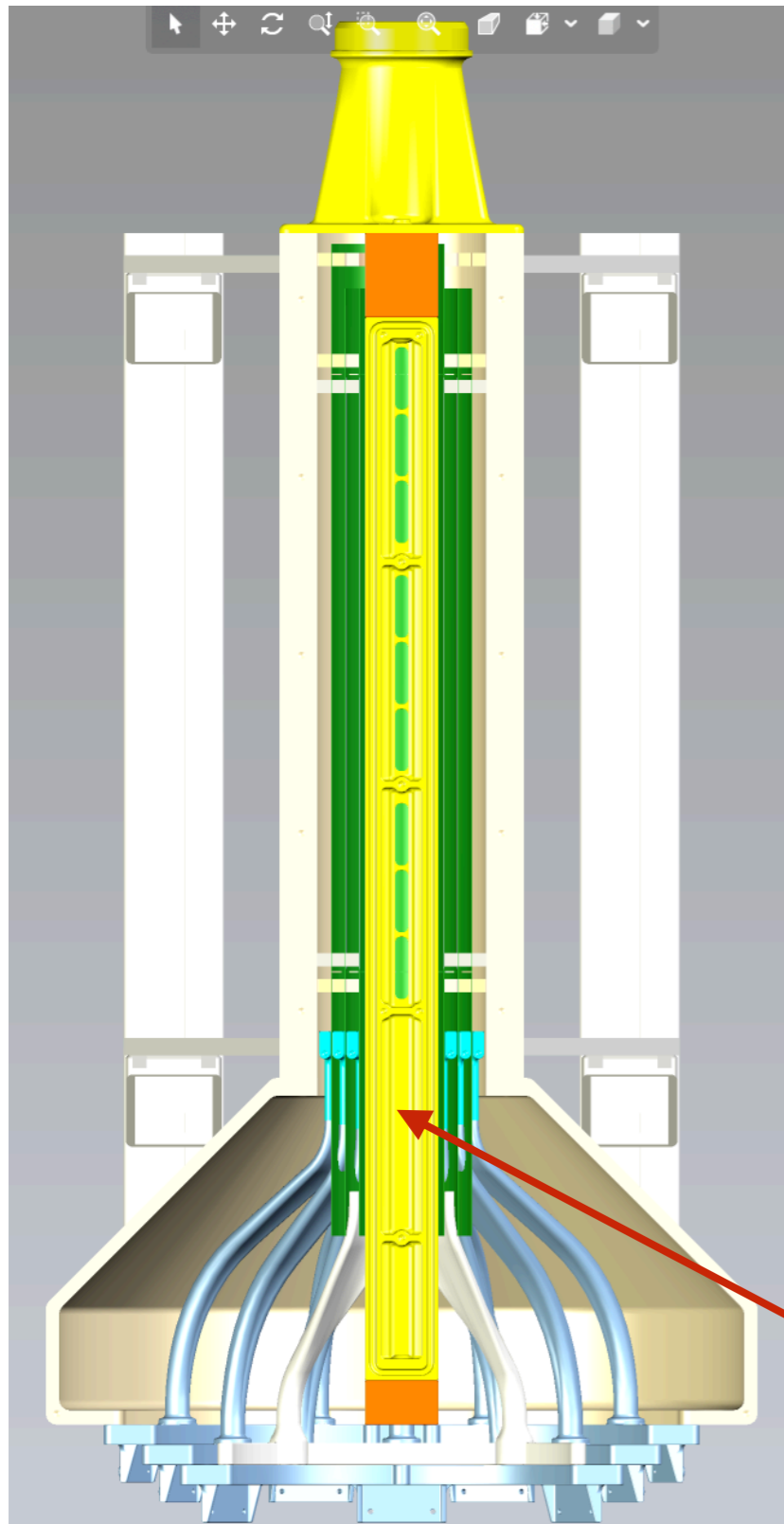




1) BEAM PIPE POSITION



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Is the positioning of the beam pipe (and particularly of the windows) fine with you?
Present position is entering windows in the sensor area.

Alternative solution, if you need to have windows also in the FPC are, is to shift everything on the C-side and open windows in the last beam-pipe section.

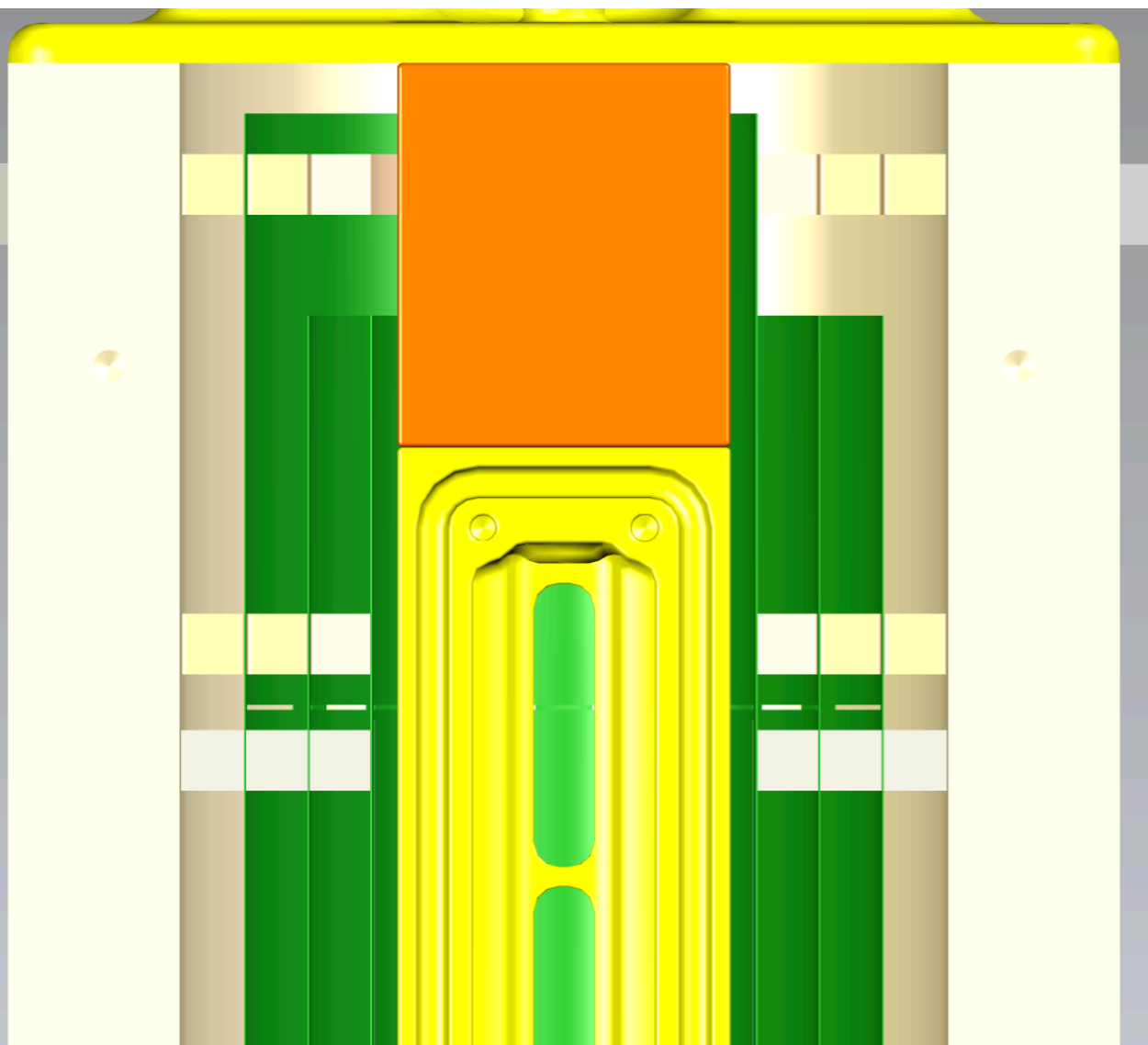
Fixing of the extensions to the beam-pipe not yet defined in the CAD.

Potentially, open new windows here

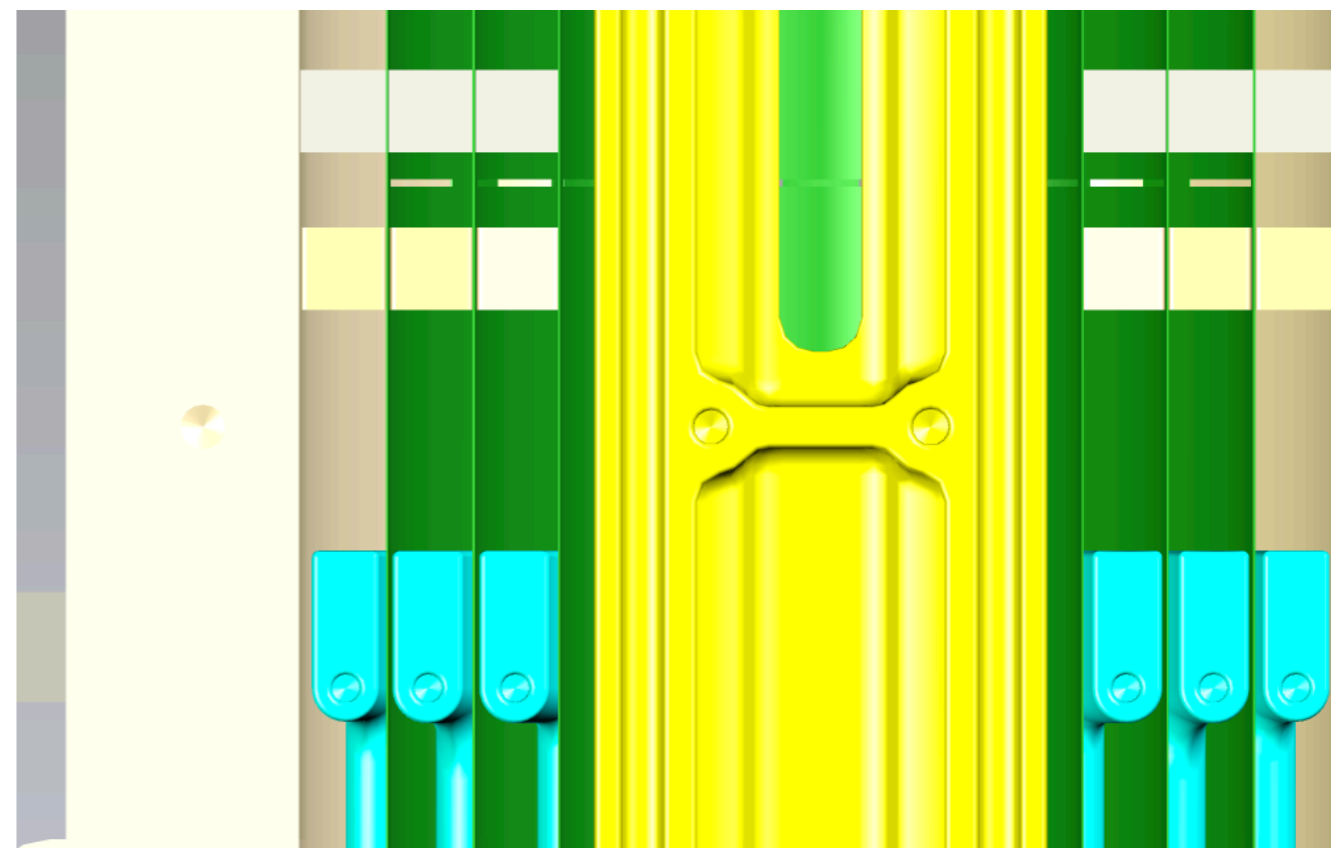


1) BEAM PIPE POSITION

C-side

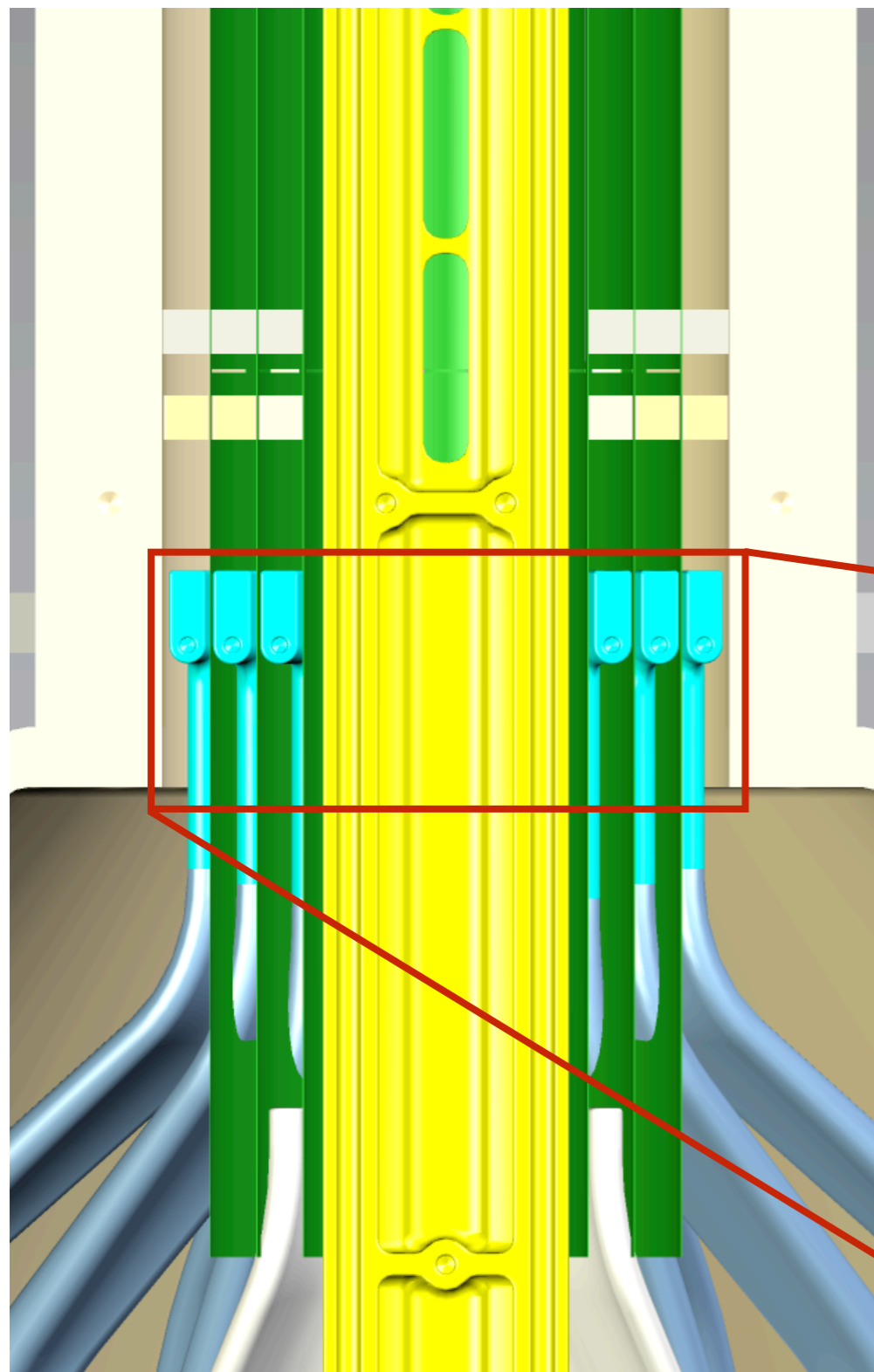


A-side

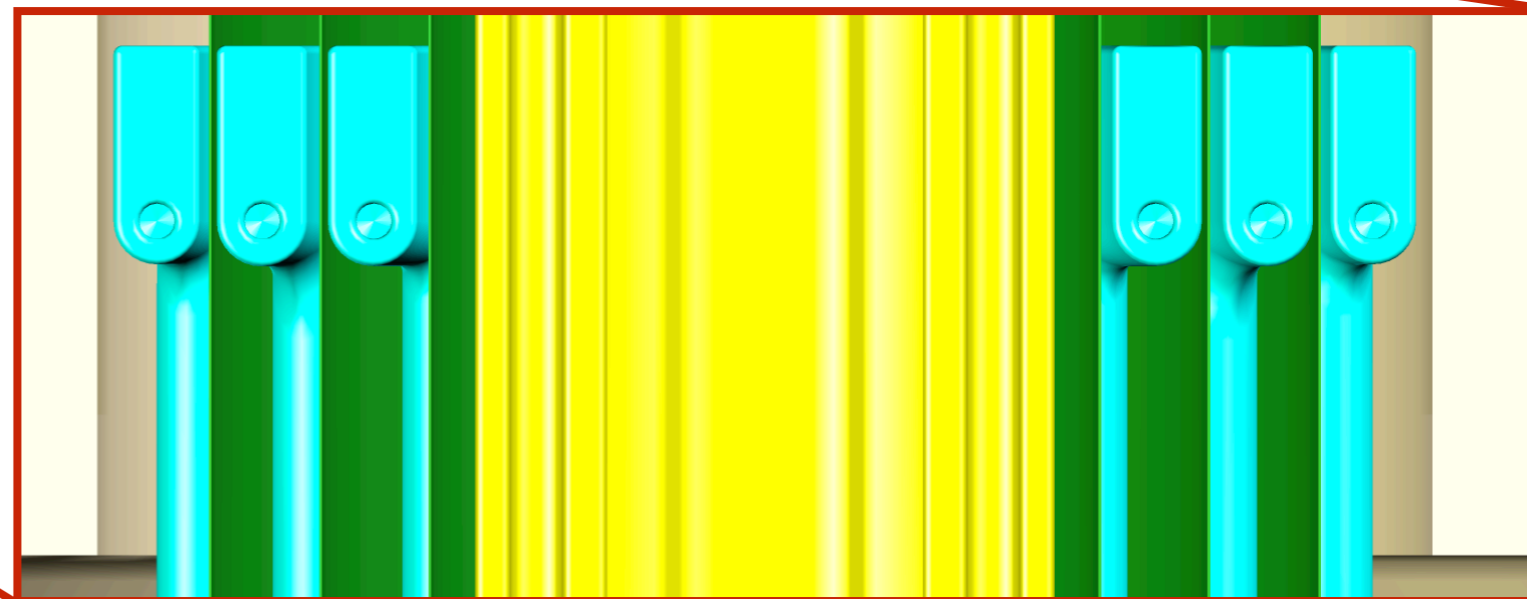




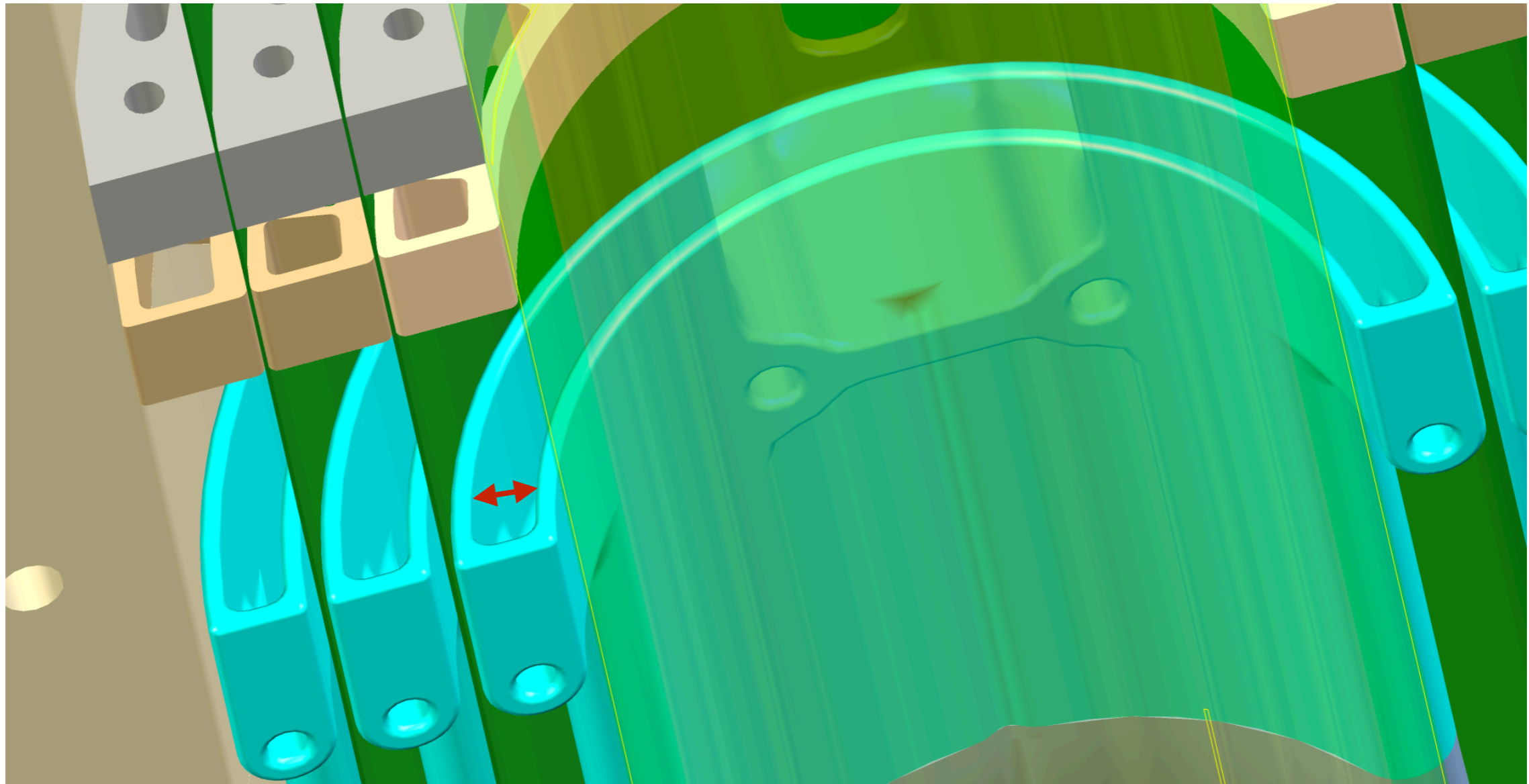
2) AIR DUCTS



Thickness of the air ducts to be fixed.

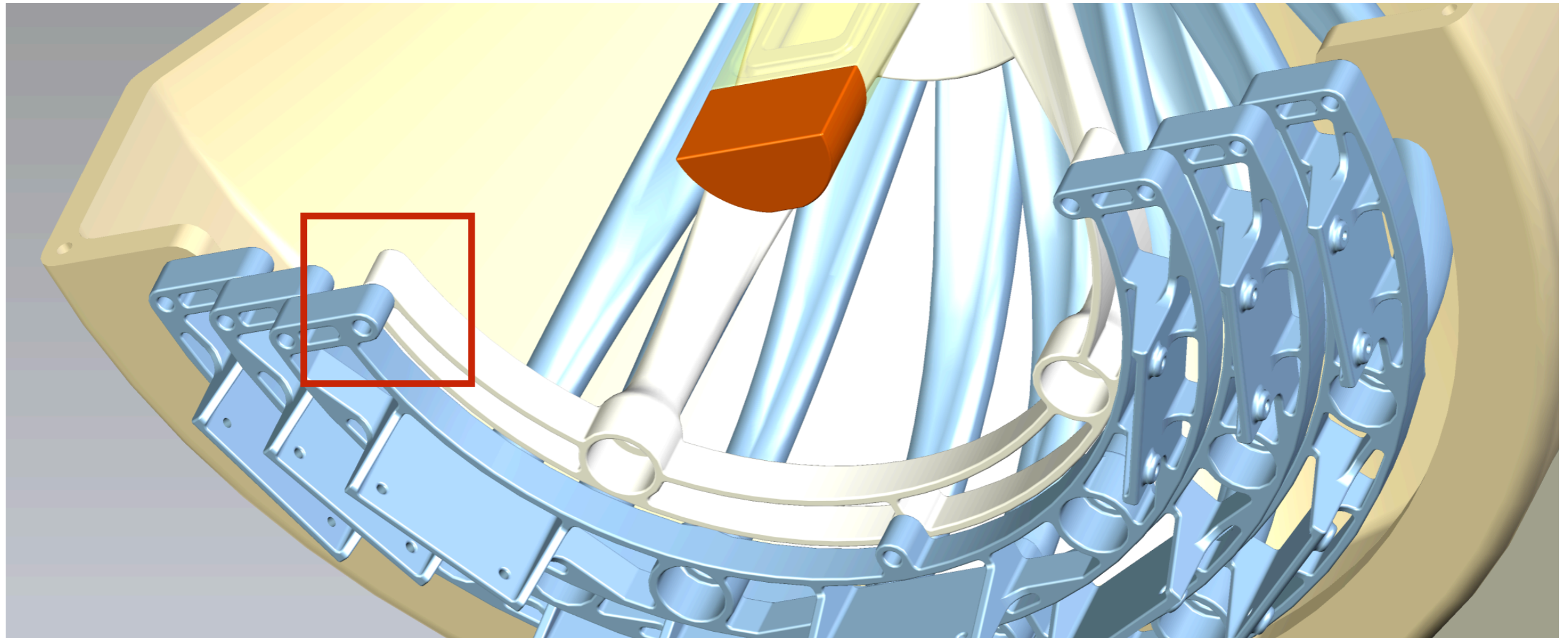


2) AIR DUCTS



If no update from Gael, proposed solution is to keep fixed internal dimension and make thicker wall from external side, filling the missing volume.

3) AIR DUCTS CONNECTION TO THE SHELLS

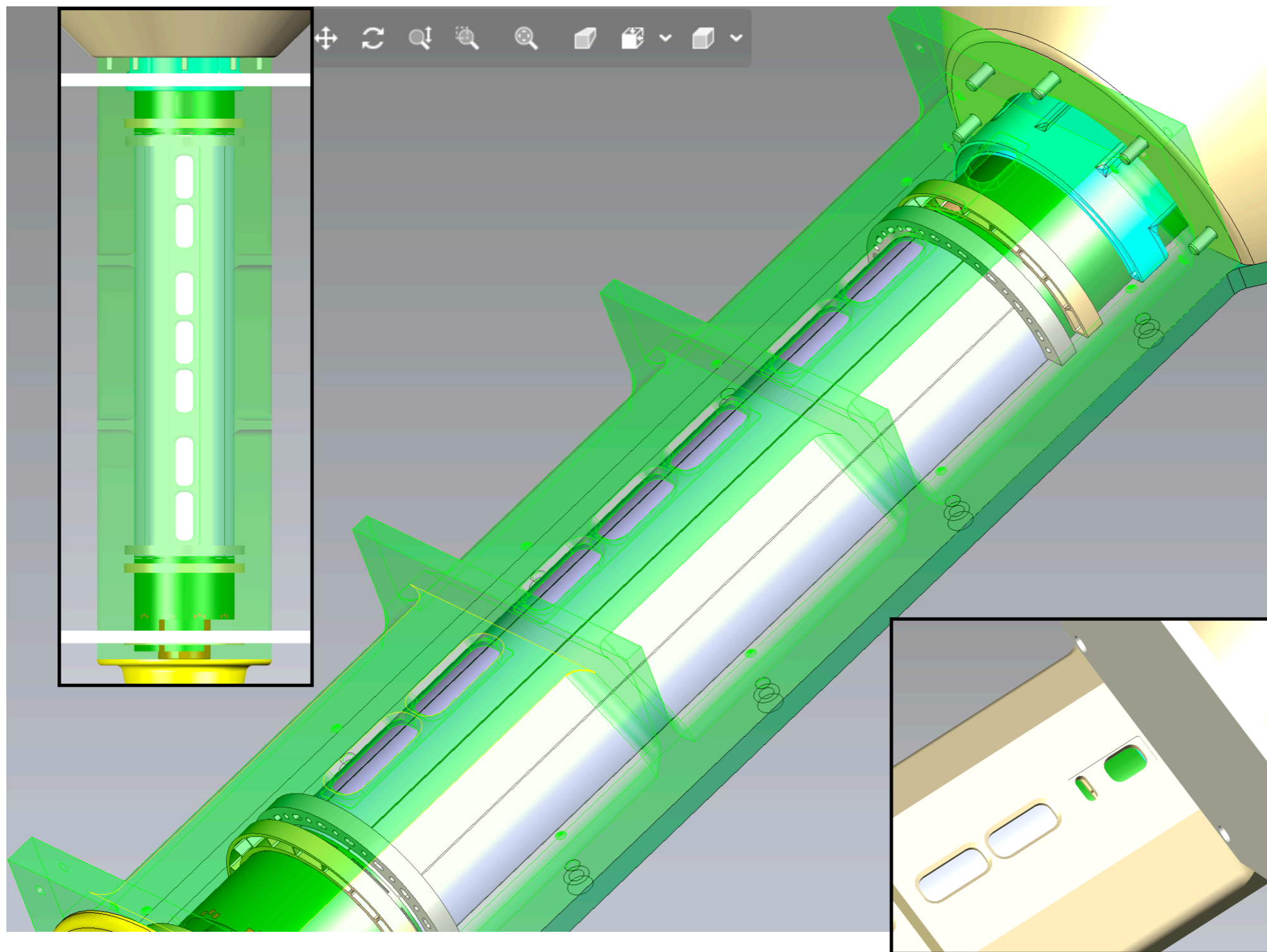


Can you give us details about the connection between the end of air ducts and the patch panel?

Do we actually need to have the patch panel?

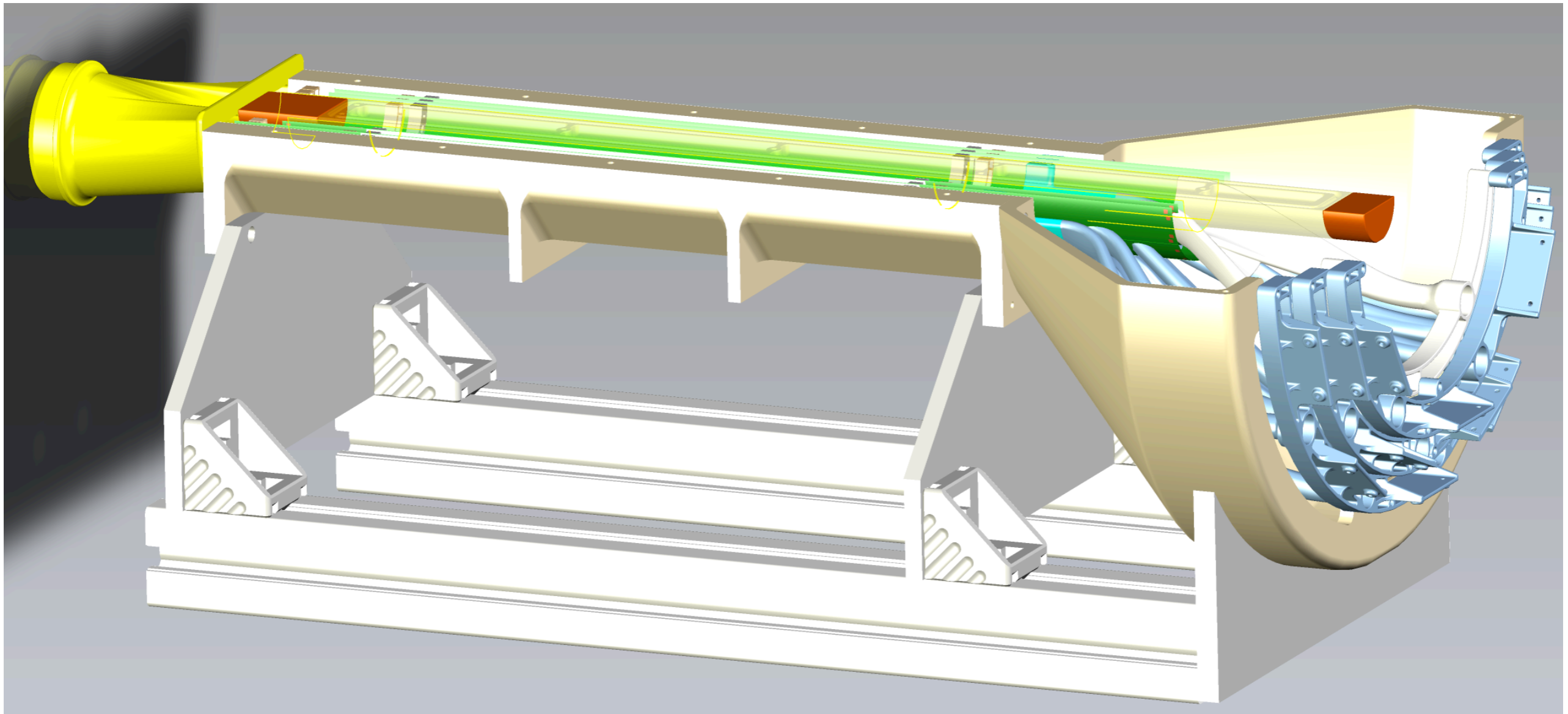


4) WINDOWS POSITION IN THE CYSS

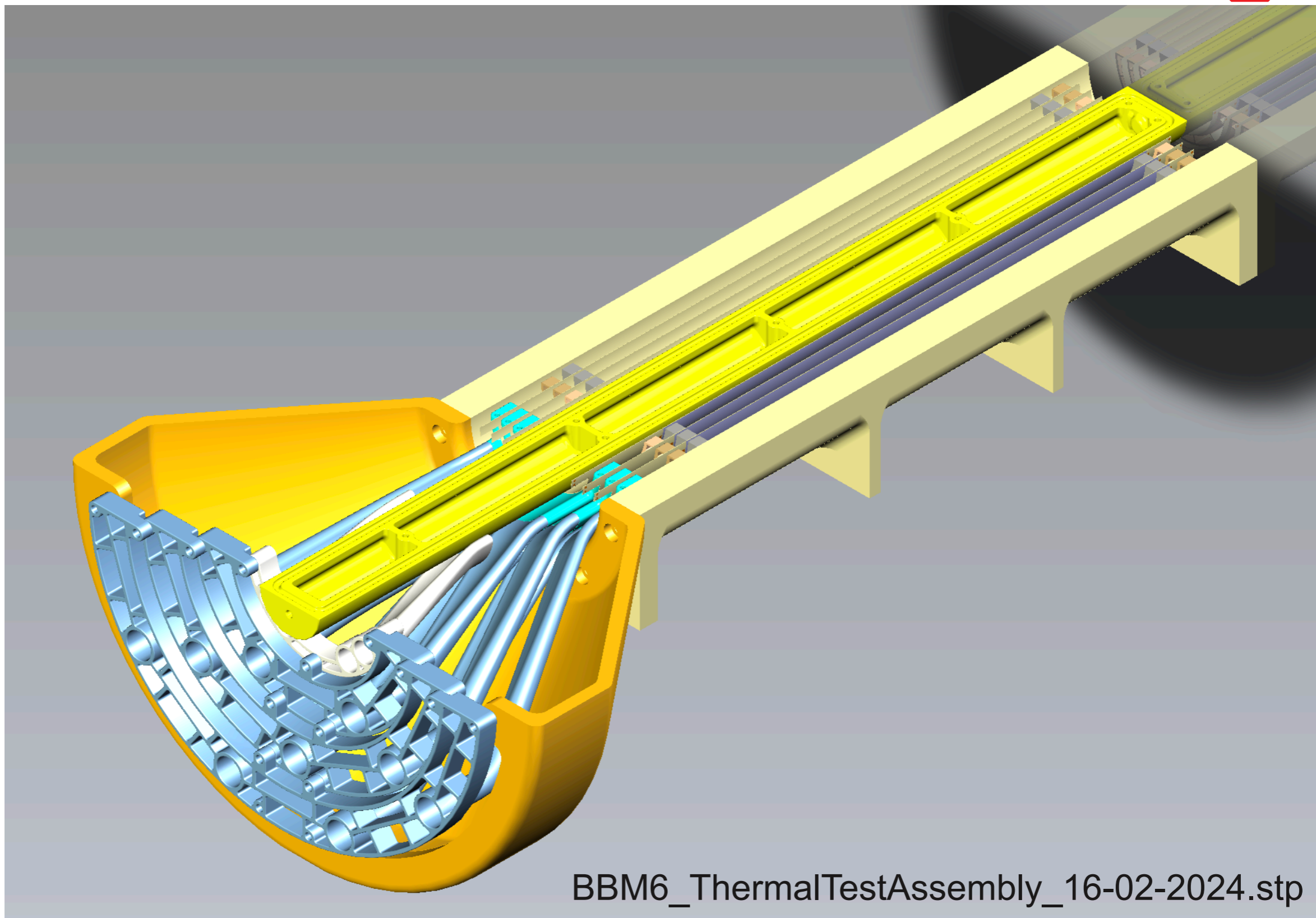


All the windows positioned in the agreed places

5) SUPPORT STRUCTURE

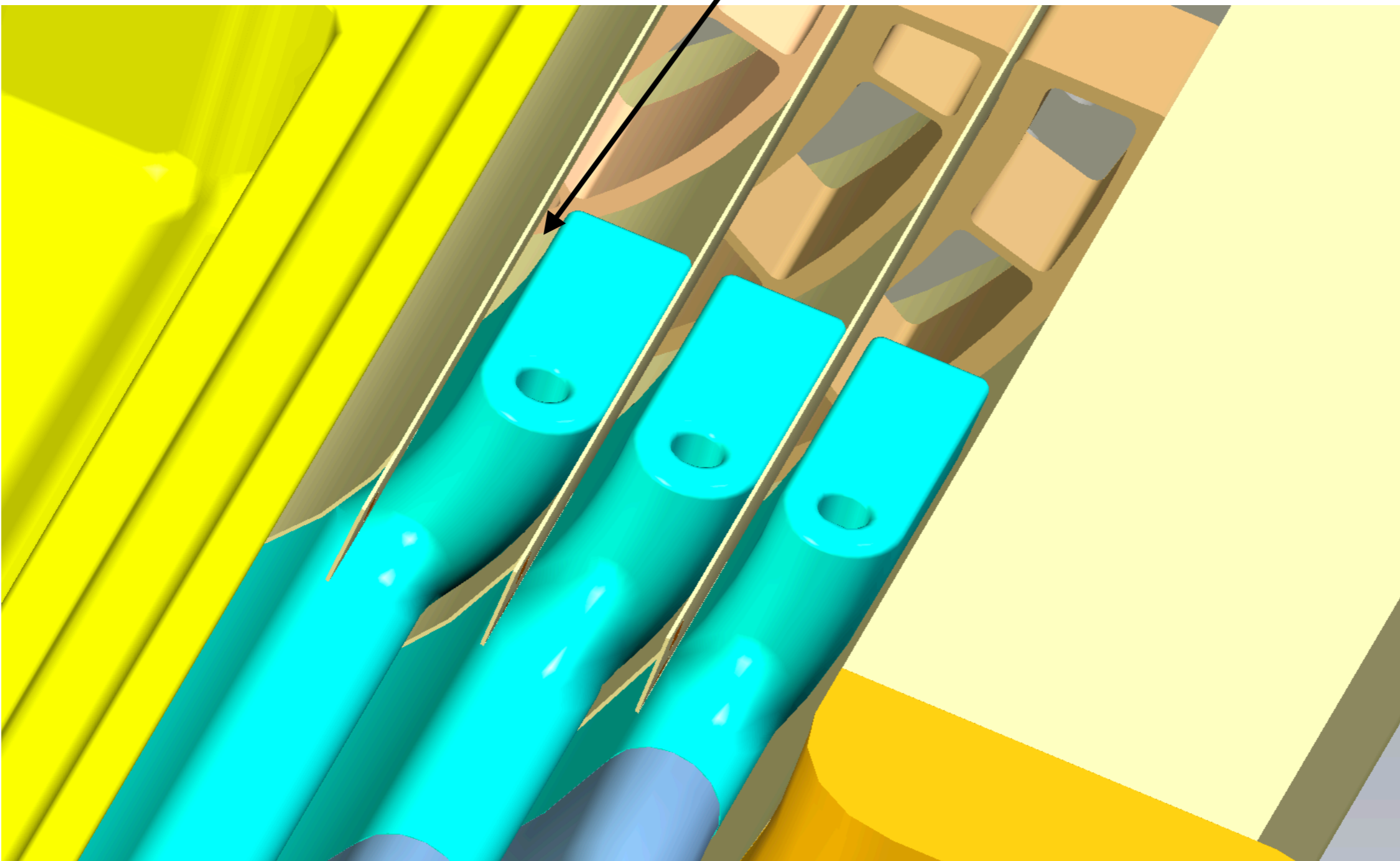


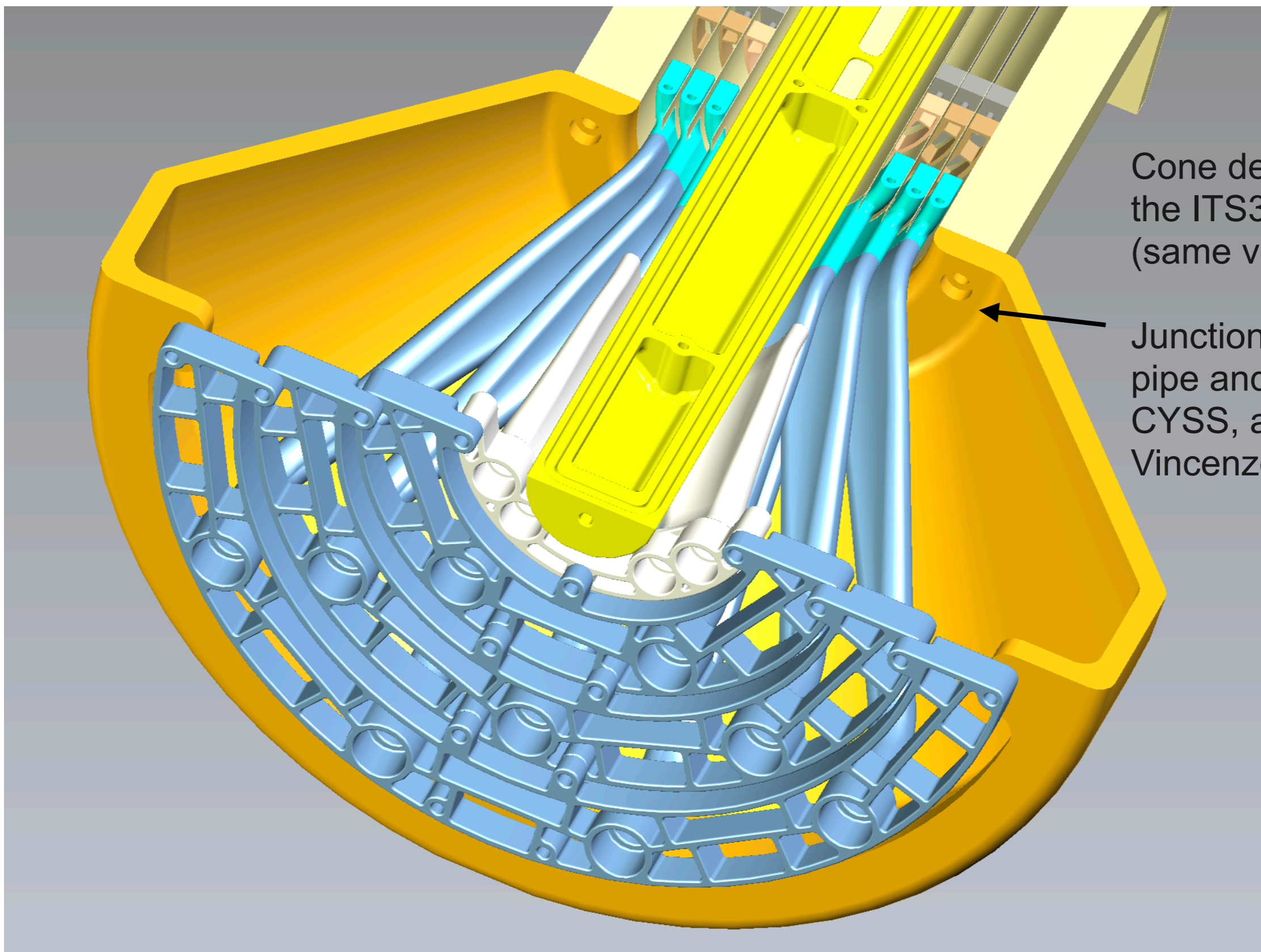
Is this solution compatible with wind tunnel?



BBM6_ThermalTestAssembly_16-02-2024.stp

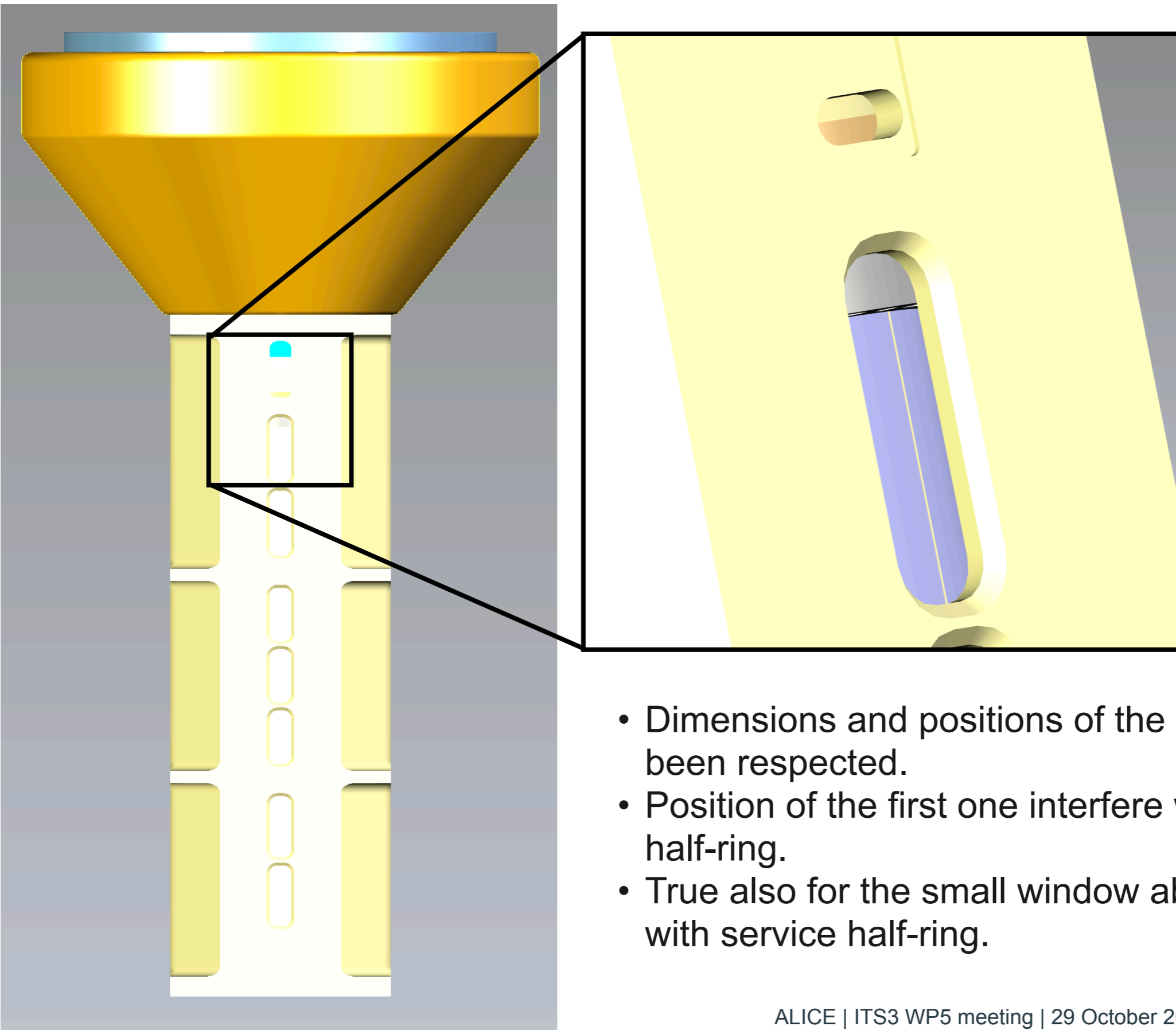
Changing layers radii and layers separation distance the cooling pipe thicknesses need to be adjusted



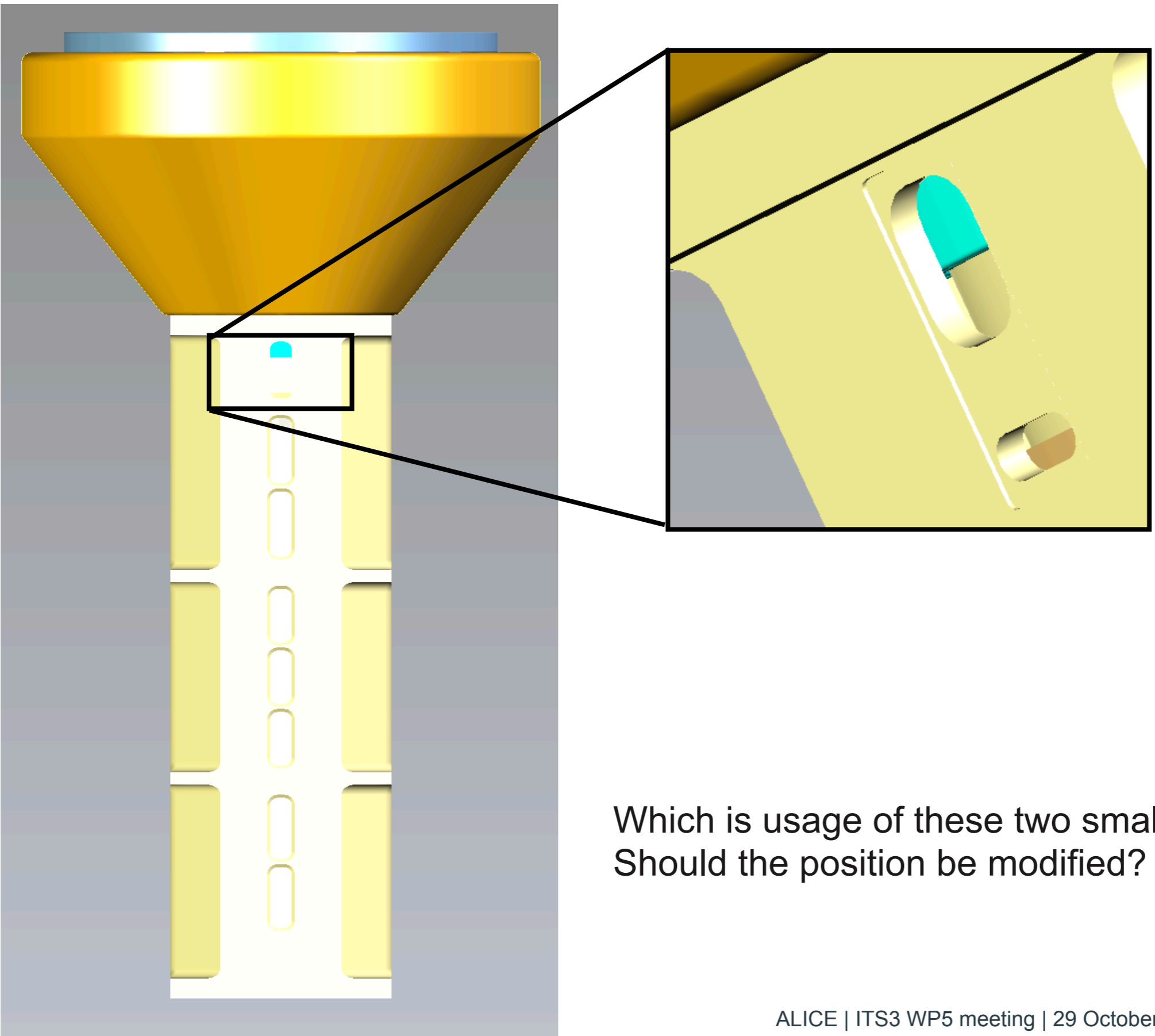


Cone design based on the ITS3 cone model (same volume).

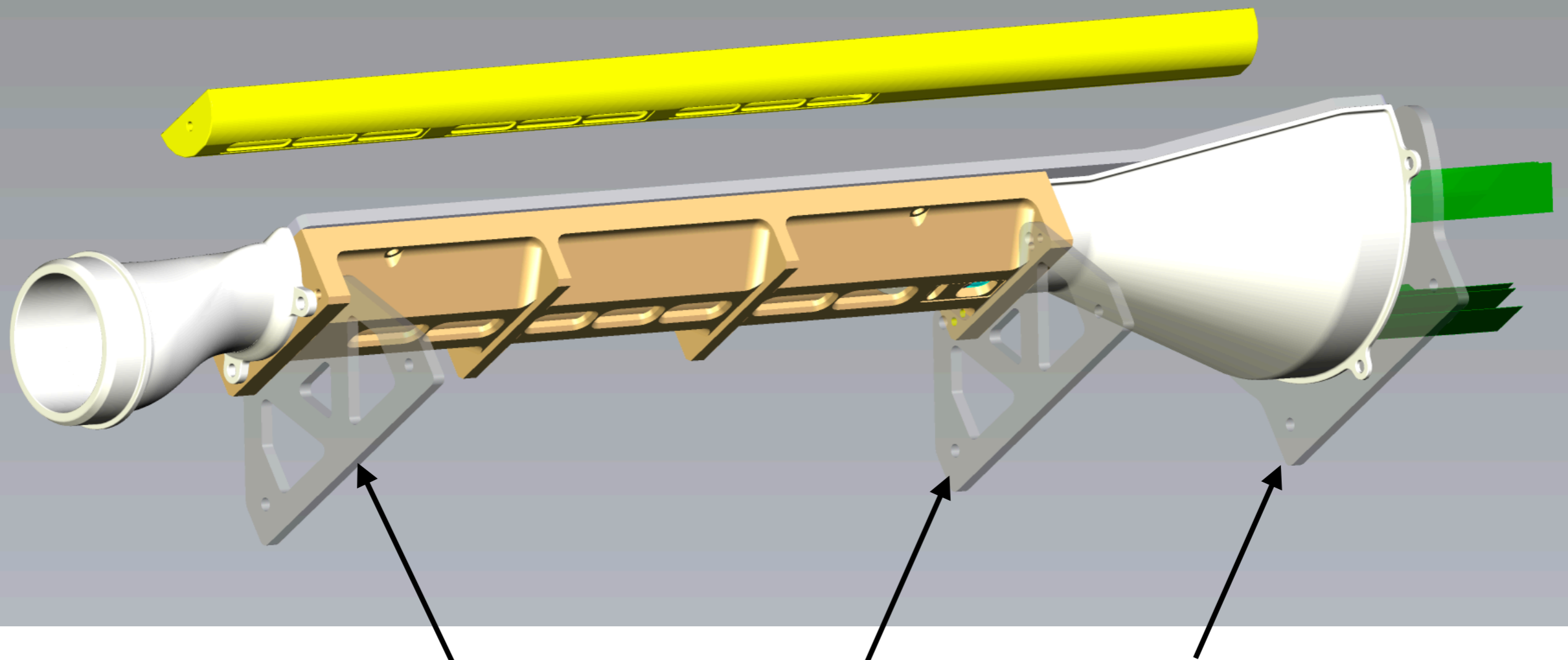
Junctions to the cooling pipe and specific CYSS, added by Vincenzo.



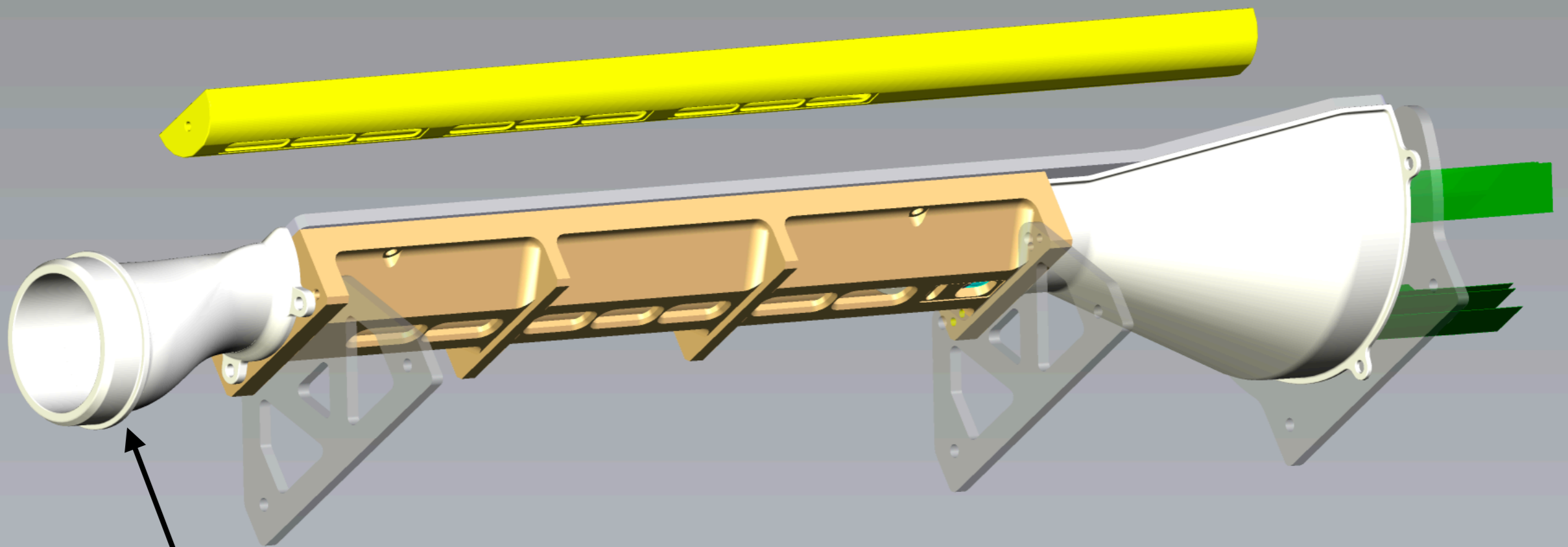
- Dimensions and positions of the big openings have been respected.
- Position of the first one interfere with the below half-ring.
- True also for the small window above interfering with service half-ring.



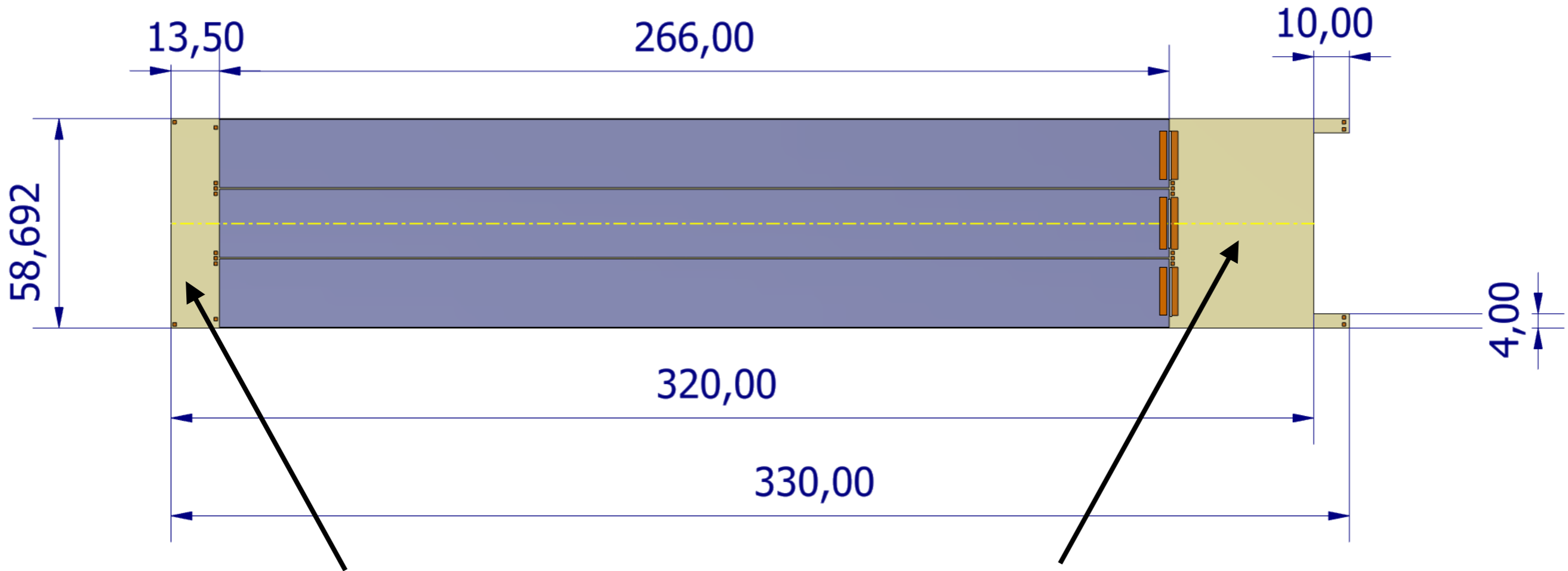
Which is usage of these two smaller windows?
Should the position be modified?



Are these supports used?
The holes in the bottom part of the supports have a special meaning and should be kept?



This needs to be redesigned.
Should we do it or you prefer to implement special constrains?
I assume that the diameter of the output should be kept.



Maybe question to Rui/Serge.

Total thickness in the sensor region 160 um, from Massimo's slides.

What would be the thickness in the region without sensor?

Should we look for a thickness close to the FPC one?

